RE-WRITING MOSUL
Reconstruction for Souk Area of the Historical Center

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INTRODUCTION

Introduction.

The historical city of Mosul and its monumental structures has been the target of ISIS during the war that lasts for more than three years from 2014 till 2017, continuous violence against the identity of the city which constructs and form the memory of the place. The historical value of the city has moved the scientific research for investigating possible strategies for preserving the characteristics of the city and its identity while the reconstruction process. the study conducted here suggests critical reconstruction criteria stemming from the evaluation of the elements which compose the urban structure of the city aiming to integrate the strong historical identity of the city with a new architectural intervention. Accordingly, specific sites were selected as a spark and starting locations for the process of reconstruction and rewriting the city of Mosul.

The methodology of the research for the selection of possible intervention sites has started from providing a historical introduction to the city and its architecture, highlighting the structural characteristics of the urban fabric. The notion of history is very useful because it defines the collective memory of the place as stated by Aldo Rossi “the city is the locus of collective memory. It is likely that this value of history as collective memory, understood as the relationship of the collective with the place and the idea of it, will give us or help us to understand the meaning of the urban structure, of its individuality, of the architecture of the city which is the form of this individuality.”[1] Secondly, morphological analysis has been conducted on a different scale for identifying and understanding the characteristics of the urban city form and the main city actors with their roles, also, analyzing the effect of the war act on the structure of the city and its neighborhoods. Thirdly, case study analysis has been done for urban and architectural projects which share similar characteristics with the case of Mosul, for extracting guidelines and ideas while dealing with our case.

According to the previous analysis, the research has identified and categorized the main city urban elements which control the city structure, its expansion, and create the image of the city. The possible intervention locations have been identified according to their relation and proximity with the city urban elements, bearing in mind the important collective strategic role of some activities which are priorities in the settlement program. After the identification of possible sites, here comes the role of the architectural object within those selected locations, Considering the practice of composition as the main conceptual approach for composing the architectural actors, starting from the project site until reaching the characteristics of the architectural space where the sensitive experiences would take place. Reaching the aim of the research which is preserving and recognizing the cultural identity of the city.

1 A Rossi, L’architettura della città, , 1966.

MOSUL HISTORICAL EVOLUTION

Reconstruction for Souk Area of the Historical Center

1.1 The Ancient Era

1813 B.C. - 330 B.C.

Thefoundationoftheoldassyrianempireandninaveh.

The land between the two rivers is located in a wide area between the Tigris and Euphrates rivers. These two rivers extend from Armenia, where the origin is precisely from the Nivat mountain range, known as the Qalashin Mountains, and the two rivers are separated, where the Euphrates face to the west and Tigris to the east until they mix in one stream called Shatt al-Arab and then pour into the Persian Gulf. The land surrounded by the two rivers was called it's upper part in Mesopotamia, it's southern part in the countries of the Chaldeans, and the section located on the shores of Tigris in Assyria is which is bordered to the north by Armenia and the east by Madi. Many historians have mentioned that Mesopotamia, or today's Iraq, is the first home of urbanization. the land of Mesopotamia was the origin of the world's most ancient civilizations starting from the Sumerian, Akkadian, Babylonian till the Assyrian. As well the Urbanization evolvement in Mesopotamia has taken place many years before the birth of Christianity. many cities have been built in Mesopotamia and it was probably the first developed city in the history of civilizations.

The ancient historians did not write much about the Assyrians, except for some stories that can be described as fictional representations rather than historical facts. Based on the ancient historian narratives, that King Ninus founded the Assyrian

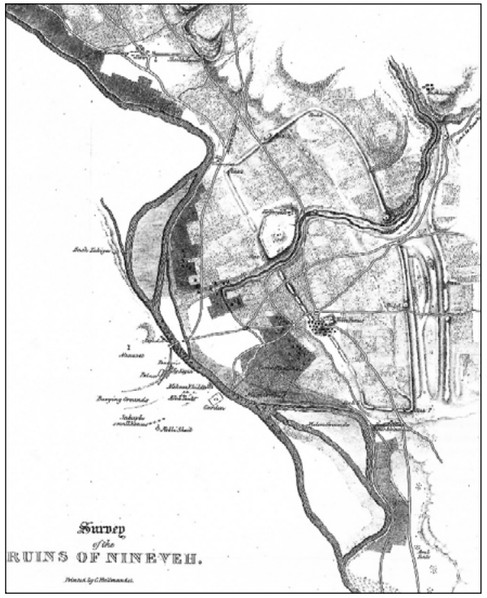


Fig.1 Survey of the ruins of Nineveh vol2, Claudius J.Rich.

kingdom between India till the Mediterranean. Ninus established the city of Nineveh[2] and took care of its architecture and decorations, and after he settled there, he began to launch raids on the neighboring tribes. The historical fact that scholars have reached through the ancient monuments discovered, that cities in the period of the Assyrians were independent in their

2 SULEIMAN SAIGH, Histoire De Mossoul 1923

administration until king Ashur was able to bring together the administration of Nineveh and Arbil together. After that, the conflicts between the Assyrian kingdom in the north and the Chaldean kingdom in the south increased until the Assyrians gained their popularity and administrative independence, they did not stop at this point but continued to control the Chaldean countries and Mesopotamia.

The Assyrian kingdom reached its zenith during the reign of King Tiglath-Pileser I, Tiglath-Pileser III, and Also during the era of the Sargonians, which began in the year 722 BC, and it began with King Sargon then king Sennacherib who take care of the capital Nineveh. After that, Ashurbanipal take the lead in 667 BC, and he was the last powerful Assyrian king who built monuments, castles and he died in 627 BC. After the death of Ashurbanipal the Assyrian kingdom went through severe turmoil, and the capital Nineveh went through a disappearance, and the state of Assyria became extinct. At this time, the governor of Babylon, Nabopolassar, declared his independence in Babylon and allied with the king of the Medes in the east to overthrow the Assyrians, so they besieged Nineveh until they occupied and destroyed it in 608 B.C at the era of king Ashur-uballit II the last king of the assyrian kingdom[3].by the time, the city has been partially rebuilt again by the remaining Assyrians in the era of the Chaldean state but it did not receive its old attention as it was.

3 SULEIMAN SAIGH, Histoire De Mossoul 1923.

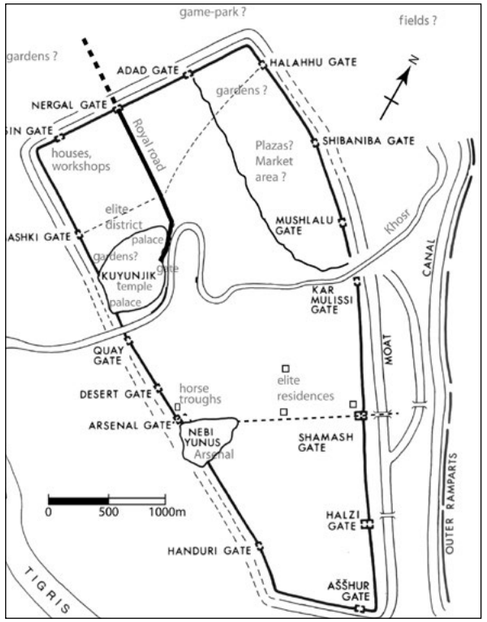


Fig. 2 Plan of old city of ninaveh and its gates.

Fig. 3 Mashki Gate.

Fig. 4 Nergal Gate.

Fig. 5 Adad Gate.

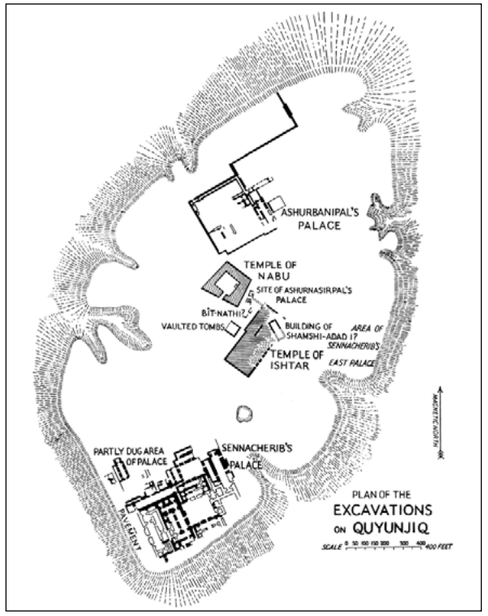


Fig. 6 Plan of the exacavations on Quynjiq.

Fig. 7 Imaginary view for Sennacherib palace.

The city of Nineveh had an essential role in the Assyrian empire, it served as a capital and regional center during the middle and early neo-Assyrian periods. Nineveh had a very strategic location at the north part of Mesopotamia, where was the location of one of the main east-west trade routes at the confluence of the Tigris and Khosr rivers[4] (fig 1). During the reign of Sennacherib in 704 BCE, Nineveh gained strong value as it became the capital of Assyria. During the same era the city was enclosed within a great wall, Along the walls were located 18 gates for entering the city and they were flanked with colossal human-headed bulls carved from blocks of gypsum alabaster[5], some of those gates are restored till present like Mashki Gate (fig 1.3), Nergal Gate (fig 1.4), Adad Gate (fig 1.5), Shamash Gate and Halzi Gate. The outer perimeter of the city was covering nearly eight miles and consists of the two great mounds, kouyunjik (more than half a mile long by a quarter broad) and the mound of the Prophet Jonah,which is considerably smaller in size, and the flats within the walls at the foot of these mounds, wherein dwelt the bulk of the people (fig 1.2). Toward the east where Tigris river there was another large rampart outside the main city walls and it seems never to have been completed[6].

4 MARCO IAMONI, The Prehistoric Roots Of Nineveh 2017.

5 LUCAS PETIT, BONACOSSI DANIELE, Nineveh, The Great City. Symbol Of Beauty And Power 2021.

6 Campbell Thompson, The Buildings On Quyunjiq, The Larger Mound Of Nineveh 1934.

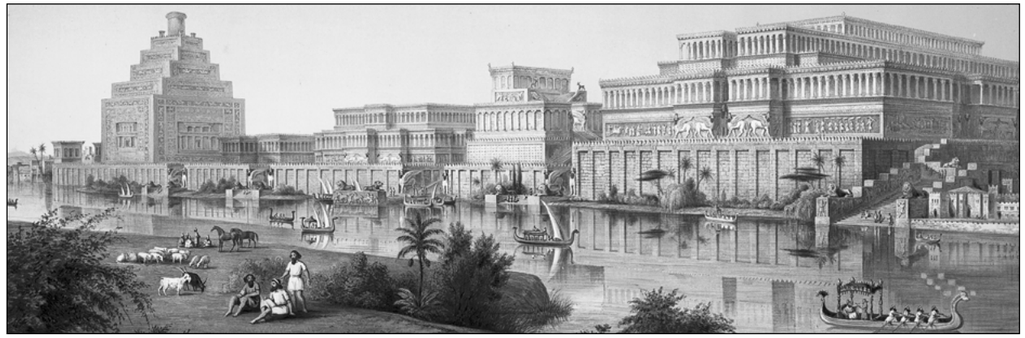


Fig. 8 Imaginary view for ninaveh by Austen Henry Layard.

Fig. 9 Al nabi Yunus mosque.

The Quynjiq mound (fig 1.6), in between the walls of Nineveh consists of several monuments that have been discovered by excavations done by the British Museum in 1927, and they are dated back to different eras. In the middle of the mound were located five buildings, the temple of Nabu, the temple of Ishtar, probably Bit-nathi for Ashurrabi II, the site of the palace of Ashurnairpal, and the vaulted tombs. Part of this group was the temple of Nabu, away to the southeast. of this, across a little valley, lay the foundation of the temple of Ishtar, while in the valley itself from North to South lay the site of Ashurnasirpal palace, the Bit-nathi, and the early vaulted tombs. In the southwest of the mound are located the great palaces of kouyunjik which belongs to the great king Sennacherib and it has a dimension of approximately 650 x 630 ft and it's decorated with many sculptures from all of its sides. in the northern part of the mound located another great palace of Ashurbanipal which was discovered with the remains of its library[7].

In relation to mosul, the Arameans historians revealed that it has a traces which date back to the Assyrian Empire (fig 1.8), the city was called at that time by The Arameans "Al-Oboury Fort", meaning the castle on the other side of the Tigris

7 Campbell Thompson, The Buildings On Quyunjiq, The Larger Mound Of Nineveh 1934.

River referring to the Assyrian fortress, in addition to a group of forts built by the Assyrians to block the attacks of the enemies from the western side[8]. The Qulayat area in Mosul on Tigris River is the site of those ancient forts, as historians suppose, and it was named in relation to these forts.

1.2 The old settlement of Mosul.
330 B.C. - 636 A.C.
Greek and Persian Empire.

After the end of the Assyrian Empire by the hands of the Chaldean state in 612 BC, the state of Chaldeans continued until the year 539 BC and they were eliminated by the Persians. The state of Persia lasted until the year 330 BC and was replaced by the Greek empire, as there was severe enmity between the two states and the Persians were eliminated through Alexander the Great, who continued his rule until 311 BC and was replaced by the Seleucids who followed the Greek empire and continued until the year 245 BC. During the rule of these empires, there was no change in the condition of the city of Mosul, as it was an empty land since the Assyrian state. However, during the era of the Greek empire, the ancient Citadel of Mosul and its forts were discovered through the Greek armies that were discovering the Tigris River and the surrounding cities, but at that time these castles and fortresses were demolished[9]. Among those ancient cities that were surrounding Mosul, the city of Nimrud which is an ancient Assyrian city located south of

8 SULEIMAN SAIGH, Histoire De Mossoul 1923

9 SULEIMAN SAIGH, Histoire De Mossoul 1923.

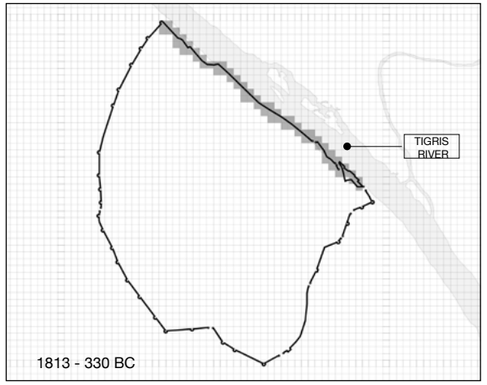


Fig.10 The position of the Assyrian fortress for defending Nineveh.

Mosul by 30 kilometres, north of the point that the river Tigris meets its tributary the Great Zab by 10 kilometers. It was between 1350 BC and 610 BC, a major Assyrian city, founded by The Assyrian king Shalmaneser I during the Middle Assyrian Empire[10].

The rule of the Seleucids ended by the hands of the Archaians or the Parthians in 250 B.C. which are a tribes of Persian origin. During the rule of the Archaians, there were great wars and conflicts between them and the Romans who were controlling part of Mesopotamia. With regard to Mosul, it has been mentioned that the Archaians were the first to build the city of Mosul by the

10 MARTIJN HOUTSMA, First Encyclopaedia Of Islam 1993.

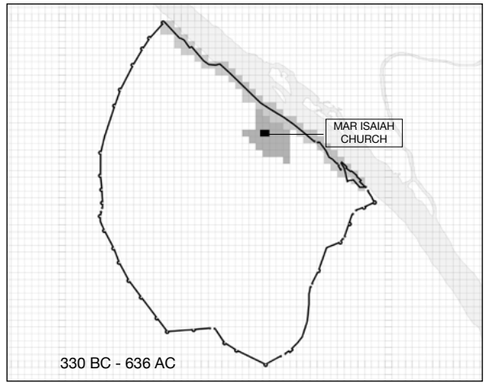


Fig.11 The position of first Cristian settlements at Mosul.

king Ortban III betwen 18-41 A.C. as a part of the Adiabene district and it was called at that time by “Nordshire”. The Parthian kingdom was divided into provinces or small kingdoms, and each kingdom had a king who ruled it, and these states continued until after the birth, and Adiabene was one of the most famous of these kingdoms due to Its distinguished location and it had an important role in the politics of the Parthian kingdom[11]. In the year 208 A.D, a dispute occurred between the king of the Archaic empire, Olghash IV, and the king of the kingdom of Adiabene, which led to the destruction of Mosul, and it was called at this time Nawardshire and remained in ruin until the Sassanid Persians seized power, however, the nature of the planning and structure of the destroyed city had not been recognized.

11 SULEIMAN SAIGH, Histoire De Mossoul 1923.

Fig.12 Plan for Al Hatra city where Arabs used to stay before moving to Mosul.

The Sasanian Persians seized power from the Archaians in the year 226 A.D, also there were many conflicts between them and the Roman Empire. During the rule of the Sassanid Persian Empire, the Christians took the city of Nineveh as their home at the beginig of the 2nd century after birth[12], because of its agricultural location and a desire to be adjacent to the Monastery of Yunnan located on a mound next to the western wall of Nineveh, which was existed since the fourth century A.D and after the Islamic conquest it became the mosque of the Prophet Yunus. Historians also reported that most of Nineveh inhabitants at this time were Christians, and the city of Nineveh was part of Adiabene cities, and it was very well built.

12 Sarre, Friedrich, and Ernst Herzfeld, Archäologische Reise Im Euphrat-Und Tigris-Gebiet 1920.

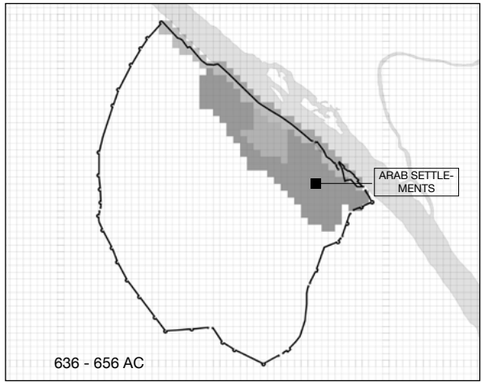


Fig.13 The position of Arabs at Mosul alongside the tigris river.

Fig.14 Archeological remaining from Hatra city.

The Sasanian rule was full persecution, killing, and displacement of Christians, from here the seeds of Mosul origins appeared through the Christian settlements in which they grew up, as Rabban Isho'-yahbh established his own monastery in the year 570 A.D on the other bank of the Tigris River, and the site of this monastery is now The Mar Isaiah Church[13] (fig 1.11).

Since that time, Christians flocked to this part of the land of Mesopotamia and built their homes, so Mosul at this time was occupied by Christians and some peasants from the Persians, and it was called at this time the Al-Oboury fortress. When Kasri the Second took over the Persian Empire, he built other houses besides the monastery area, so the population increased, and the city structure at this time extended on the banks of the Tigris River, and the main axis of the city was parallel to the Tigris river.

The beginning of the Arab settlements in mosul
636 A.C. - 656 A.C.
The old settlement of Mosul.

The Arab tribes appeared in Mesopotamia since ancient times during the rule of the Assyrians and what followed, but their numbers increased significantly during the reign of King Nebuchadnezzar, as he relied on them to build palaces, so Babylon was one of the greatest countries in the world during his reign[14]. The Arabs used to live in the city of Al-Hirah, which was located near Baghdad, but the conditions of the Arabs were not stable, as they were frequently invaded and displaced even after their numbers increased.

The Kingdom of Al-Hirah was formed by Amr bin Adi in 268 AD and continued until the Islamic conquest, when it was destroyed by Khalid bin Al-Walid. And before the Islamic conquest, Arabs also lived in Hatra (fig 1.12), a great city located to the right of the Tharthar River, south of Mosul, 85 kilometers away from it. The city was characterized by being built very precisely, and its buildings have distinctive roofs and doors (fig 1.14). The city had 60 towers connected to its walls, and between each tower and another there were nine small towers, so the city was heavily fortified.

The city of Mosul is considered an Arab city, and it was not founded by the Romans or the Greeks, but the Arabs did not plan it as they planned and built Basra, al-Kufa and Baghdad, where Mosul was a small city before the Arabs inhabited it. The Arabs were the ones who launched the name Mosul, which is an Arabic word meaning the forum, meaning the site that connects one place to another. The Arab settlements began in Mosul after the tribes that inhabited the city of Hatra moved to it. Arab settlements began on the banks of the Tigris River, complementing the Christian settlements (fig 1.13). The structure of the city of Mosul was subsequently affected by the structures of the cities that were inhabited by Arabs before the founding of Mosul, so we find that there is a convergence between it and the city of Hatra, and this confirms that Mosul is of Arabic origin.

13 Edmund Bosworth, Historic Cities Of The Islamic World 2008.

14 SULEIMAN SAIGH, Histoire De Mossoul 1923.

1.3 Mosul as an Islamic city
656 B.C. - 744 B.C.
Ommayah Period

After the Muslim conquest, the settlement became a garrison town -Misr - under the caliphate of Omar ibn Khattab's caliphate and was given a Friday mosque. The term "garrison town" was formulated because it served as a settlement focal point for the Arabs/Muslims, separating them from the indigenous population.

The historic Islamic city is traditionally a walled city with a citadel (Qal'at) located outside the city center, usually on a hill or near water. The main Friday mosque (Jami) is located in the heart of the city, and the bazaar (souq or qaysaria) surrounds the mosque and extends along the main streets leading to the city gates. It almost corresponds to the structure of Mosul at the time of the Umayyads. The streets of the city were paved, and fortified walls were built around them "surrounded an approximately 300 Hectare town in an irregular semi-circular shape, attached to the elevated bank of the Tigris" during the brief rule of Marwan II (744-750 AD). Mosul in this period was less than half the size of its east bank neighbor in ruins, ancient Nineveh, when Carsten Niebuhr visited it at the end of the 18th century AD. "[15]

Moreover, during the reign of Marwan II, known as the Master "Builder" of Mosul, the city had "around 50,000 inhabitants, twice as populous as

15 Novacek K, 2017

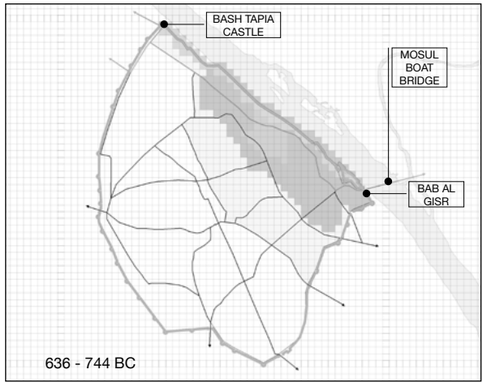


Fig.15 The structure of mosul at the ommayeh period.

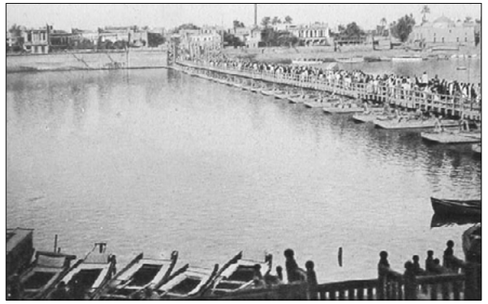


Fig.16 Mosul boat bridg river.

modern Rome but ten times less populous than Baghdad".The Ship Bridge, which is considering the only bridge over the Tigris until the 20th century AD, the Qaysaria (covered market), and the Ummayyad Mosque, from which the Al-Nouri Mosque inherited, are all attributed to this era. At this time, towns like Mosultypically had only one congregational mosque, the Friday Mosque, which could have housed the entire male population of the city.

Abbasid Caliphate
744 B.C. - 894 B.C.

Due to the growth of the city as one of the most important trading hubs in Asia and the immigration of more Arabs, the structure of the city began to take shape from east to west during this period, with the main road extending from BAB AL GISR to BAB AL BAYD.

Mosul "is the metropolis of this region," according to al-Muqaddasi, a tenth-century geographer. "It is a splendid city, beautifully built, highly renowned, and of great antiquity, it is possessed of excellent markets and inns, and is inhabited by many personages of account, and learned men; nor does it lack a high authority in the traditions, or a celebrated doctor of the law.
From here come provisions for Baghdad, and thither go the caravans of al-Rihab. It has, besides, parks, fruits, very fine baths, magnificent houses, and good meats: all in the entire town is thriving."

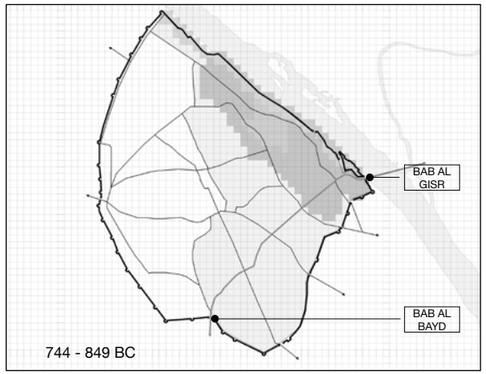


Fig.17 The structure of mosul at the ABBASID period.

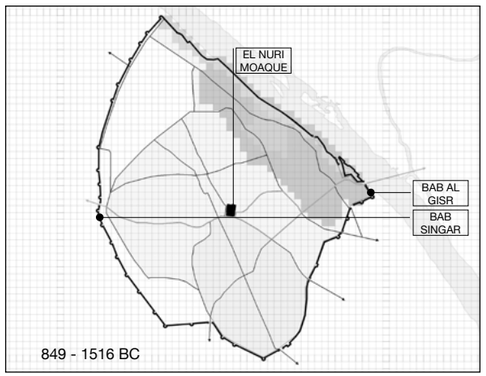


Fig.18 The structure of mosul at the ZENGID period.

Zengid Dynasty
894 B.C. - 1257 B.C.
Mosul as an Islamic city

Mosul reached the height of its power during the rule of the Zangid Dynasty in the 12th century AD. Bab Sindjair became increasingly influential as the city's main gateway during this period, shifting the city's main axes. Imad al-Din Zengi rose to power and established himself as the Atabeg of Mosul and Aleppo. His reign is considered the golden age of Mosul. During this period, numerous mosques, shrines, schools, ribats - Sufi huts - and hospitals were built in Mosul. He also strengthened the city walls by doubling them, adding large towers to reinforce them, building the citadel Bash Tabyia (the northernmost point of the city), and deepening the trenches. (figur 2.4).

According to Ernst Herzfeld and Nikita Elisseeff, Nur al -Din's son continued his father's work and had the new Grand Mosque of Mosul, the Al-Nouri Mosque, as well as a madrassa and the Al-Hadba minaret built in 1170 AD. The oldest and most visible layer of architecture in the old city of Mosul probably dates from the 12th to 13th centuries AD. In the 13th century, Mosul had 3 congretional mosques, 36 souqs, 28 schools, and 18 dar-hadi ths - madrasas[16], 8 churches, and an astonishing number of 210 hammams[17] Mosul was conquered and sacked by the Mongols in the second half of the 13th century and was later ruled by the

16 Kemp P, 1979

17 Fethi I, 1977

Fig.19 The Al_Nouri Mosque.

Fig.20 Al Hadba Minaret seen from alleyway.

Ilkhanate and Jalairid Sultanates. The Mongol invasion of the region decimated Mosul's population, and the city's urban expansion was stifled. Mosul was plagued by political insecurity for centuries, and its once-thriving trade markets and rich hinter land were destroyed. During the Atabeg period, the population that lived outside the southern city walls retreated insi de them. The north of the city was deserted, theonly inhabited neighborho being those around Al Nouri and east of the river.

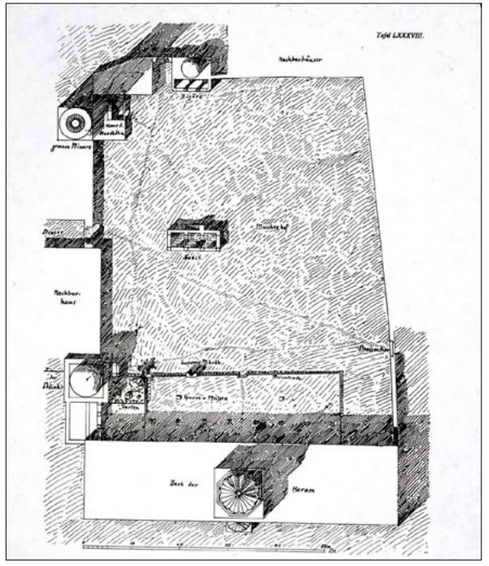


Fig.21 Layout of Al-Nouri Mosque.

Ottoman Empire
1257 B.C. - 1918 B.C.
Mosul as an Islamic city

Despite being conquered by the Ottomans in 1517, Mosul was considered mostly a garrison city, so no investment was made, and it was not until another hundred years later that the city saw a period of growth and revival. The Ottoman Mosul, which had shrunk significantly during the Mongol invasions, expanded once more outside the city walls, this time to the southwest and southeast. As a result, Mosul was rebuilt and refurbished as the region's commercial and administrative center. Then, the old city which was surrounded by a wall until the nineteenth century retained the medieval city plan, architecture, and layout of its historic nucleus, to which Ottoman buildings were added. Once again, the city grew. Nonetheless, all the improvements and structures constructed during this period were merely political acts undertaken to gain prestige and influence. (Figure) "By 1820, Mosul had about 25 Friday mosques, the most of those had been established under the Jalilis, either from scratch or on the site of an old masjid – smaller mosque"[18] . It was most likely during Ottoman rule that the Bazar around Al Nouri mosque lost its importance and gradually subsided to the streets in the vicinity of the new Sarai neighborhood, which became the main qaysaria of Mosul.

18 Kemp P, 1979

The Sarai appears to have moved within the Islamic city over the centuries. During Ottoman rule, the Islamic city's urban spatial organization required the Sarai to be located on the defensive wall's border, either inside the city's precinct, as in Antalya, or outside, as in cities throughout the Middle East and North Africa. Mosul's Sarai was located within the city walls until the late 1800s, when it was relocated to the far south, outside the city. The first Ottoman Sarai, as seen for a brief period, was located on Citadel (Qal'at) Island, with its maiden facing the island.

The Sarai was relocated to the city's south during Jalili's rule. This is when Suq al Sarai – the qaysaria next to the Sarai – became the city's main qaysaria, where one could find the most important inns with construction dating back more than 900 years. Mosul Old City has a variety of architectural styles. Mosques, shrines, and churches are examples of public architecture in the city, reflecting the artistic styles of the eras in which they were built.

Mosul's unique riverfront panorama with monumental buildings is another example, as are the Ottoman inns and bazaars to the south. According to the 2016 UN-Habitat profile of the city, Mosul had some 486 Islamic monuments and historic mosques as well as 32 ancient churches and 6 monasteries.

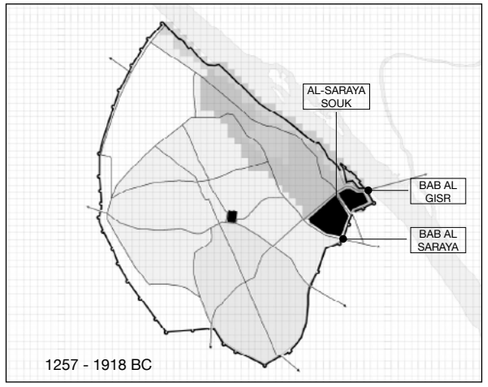


Fig.22 Mosul borders at the OTTOMAN period.

Fig.23 Ramparts of Mosul.

1.4 The 20th Century
1918 B.C. - Present.
From Kingdom to Iraq Republic

After World War I and the defeat of the Ottoman Empire, Mosul became part of British rule from 1918 to 1926, including Baghdad and Basra. The British carried out major infrastructure projects throughout Iraq, such as building roads, bridges, and railways. But eventually halted developments for lack of sufficient revenue. During this time, Mosul received a water supply and electricity system, the railroad and railway station were completed, and the main street of Mosul's Old City, Nineveh Street, a commercial street with many shops and multi-story buildings, was cut through the historic bazaars. a new bridge was built over the island of Qal'at, which was completely leveled and connected with the city.

Mosul then became the capital of the province of Nineveh after it joined the newly formed country of Iraq in 1926. The city expanded during the royal rule, which lasted until 1958, and the defensive wall was demolished around 1933. New districts were built within the old city, in the abandoned northern section, and outside, in the southwestern and southeastern sections.

Al Shaziani and Al Farooq Streets, which were created by structuring and enlarging existing roads between the 1930s and 1950s, became the Old City's north-south artery."The opening (or the widening) of these roads didn't affect the morphology of the urban fabric, but certainly

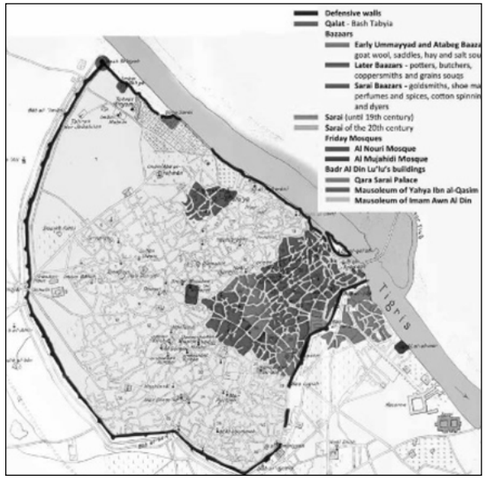


Fig.24 The Urban structure of Mosul at the OTTOMAN period.

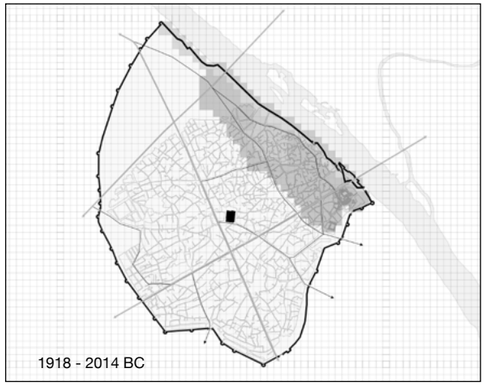


Fig.25 Contemoprary structure of Mosul.

created a new system of relation with the Old City, its hinterland, and the wider urban area that expanded outside the wall and beyond the river."[19] With the establishment of the Republic of Iraq and the regime of Saddam Hussain Mosul grew and modernized, expanding along the eastern bank of the Tigris. The most significant period of Mosul's expansion was after the 1970s when many works were conducted under the 1975 French Master Plan

The 5th Bridge, connecting the East Bank to new trends west of the Old City, was considered the only major change the Old City experienced before the recent conflict. This highway cuts through the northern part of the Old City, separating it from its citadel Bash Tabyia and other important Atabeg structures from the 12th and 13th centuries, such as Shaykh Fathi mosque, madrassa Al-Nuriyya, and Mashhad (shrine) al-Imam Yahya ibn al-Qasim.

In recent decades, many modern buildings with concrete and other modern materials are built within the Old City, whereas many historical houses have been decayed or destroyed mainly because of the inability of the owners to restore them or because of a desire for modernity. However, the city's toughest blow came under Daesh rule, (al-Dawla al-Islamiya fi Al-Araq wa al-Sham) which deliberately destroyed some of its significant public buildings, the old town seems to have preserved its morphology despite the destruction caused and subsequent operations to resume the city in 2016 and 2017.

The contemporary city of Mosul, which encompasses both the west and east banks, is now one of Iraq's most important cities. It is Nineveh's capital of northern Iraq, the second-largest city in Iraq after Baghdad, and Iraq's largest. The town consists of 251 quarters (mahala) nowadays on the two sides of Tigrish, with 91 districts on the Western Bank (the old town and neighborhoods) and 160 neighborhoods on the East Bank, according to the UN-Habitat profile of Mosul 2016.

Despite the destruction brought by the conflict and subsequent operations to retake the city in 2016 and 2017, the Old City seems to have preserved its morphology, even if its buildings (represented mostly by 18th and 19th-century residential architecture) were heavily damaged.

19 Pini D, 2019

Fig.26 Drone View of Al Nouri Complex after its destruction in 2017.

Fig.27 Mosul from the air in 2017.

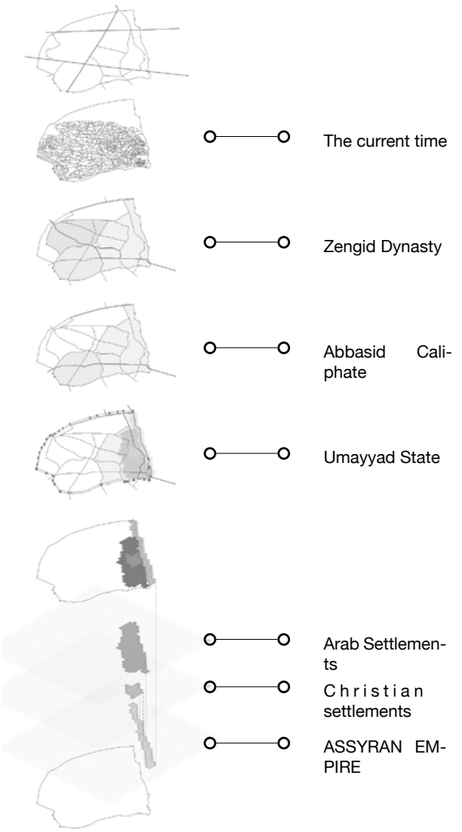


Fig.28 The Develobment of Mosul city form along its history.

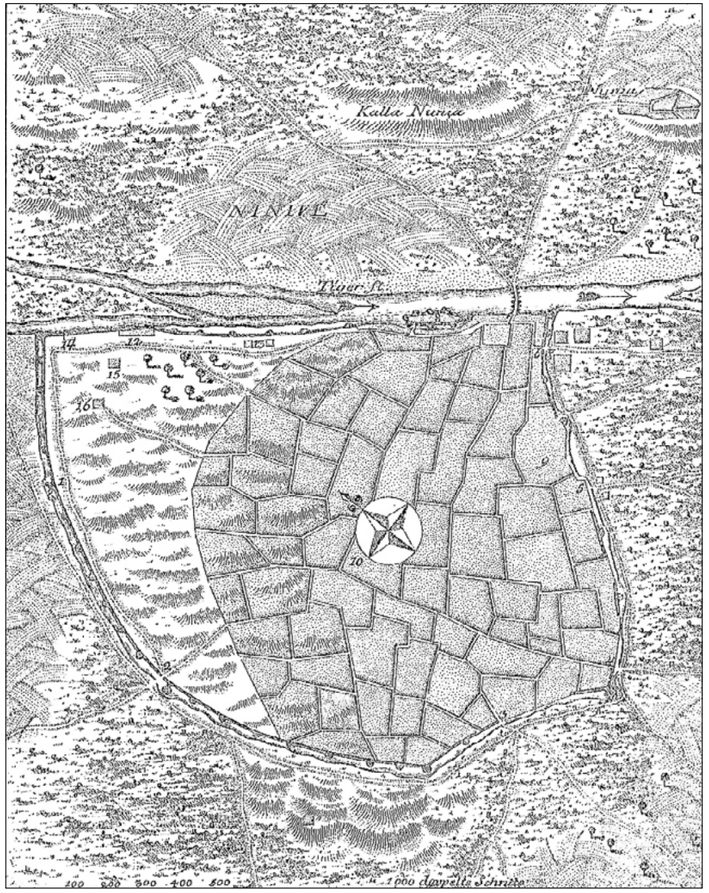


Fig.29 Mosul map in 1778.

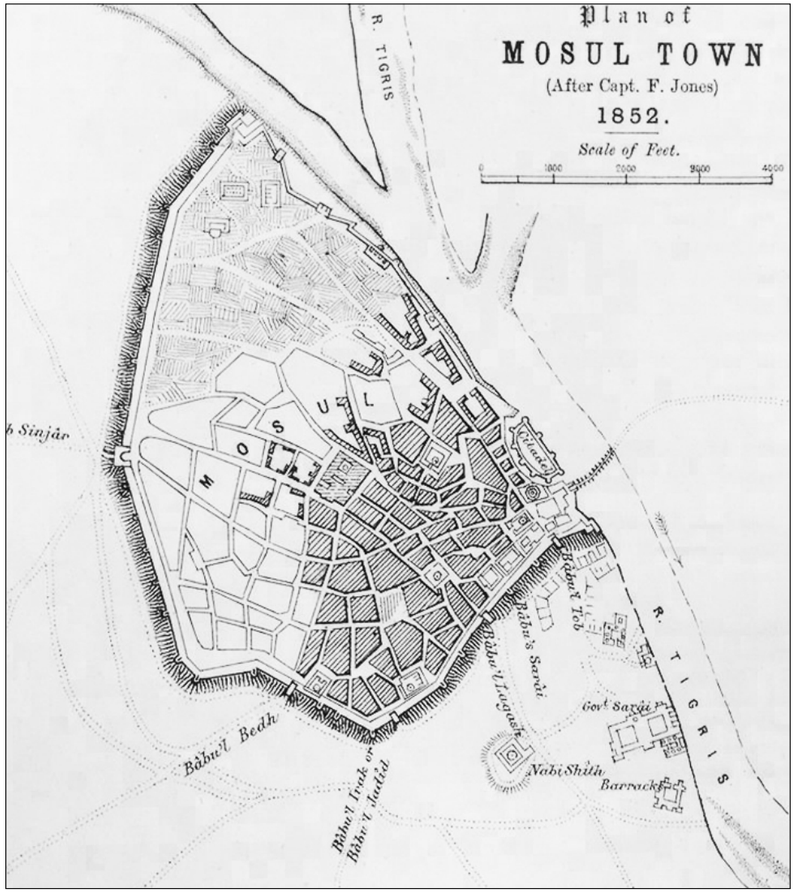


Fig.30 Mosul map in 1852.

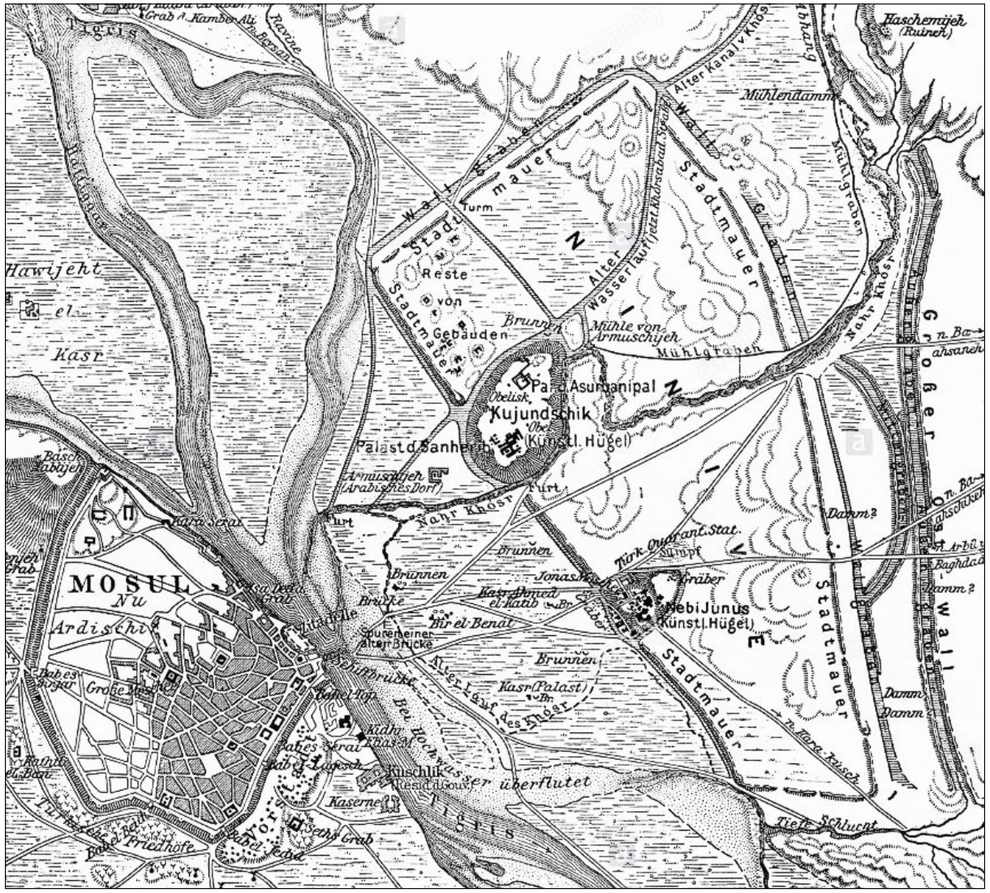


Fig.31 Mosul map in 1900.

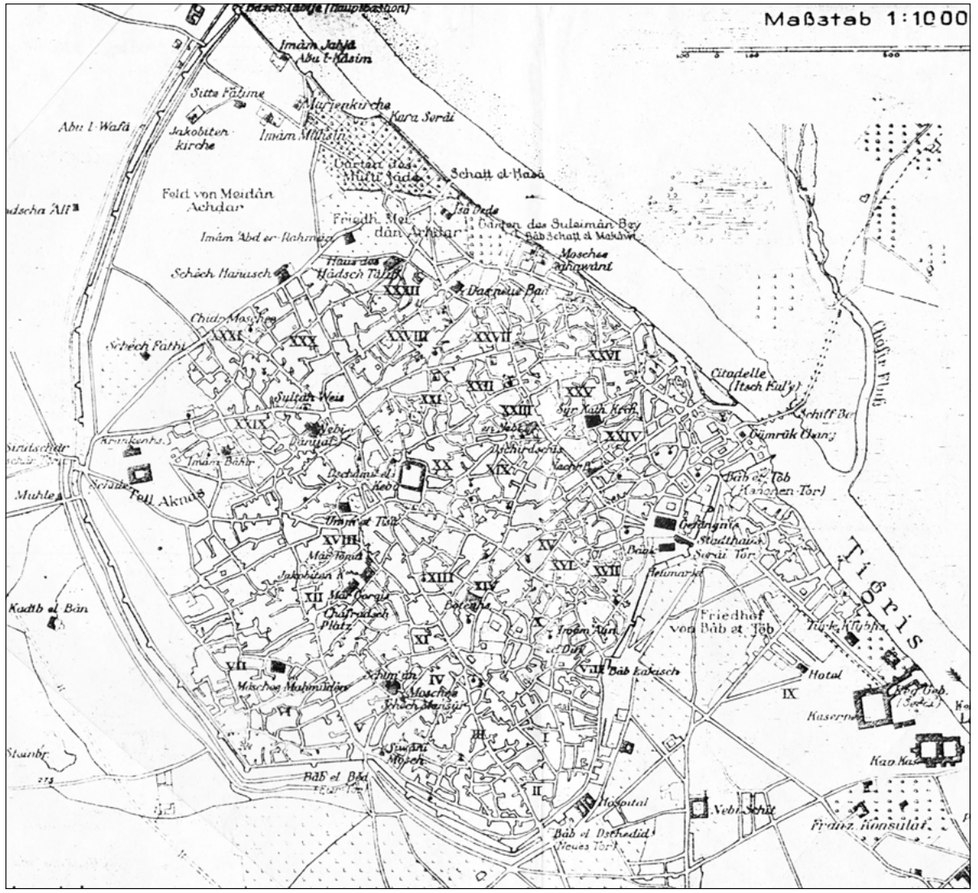


Fig.32 Mosul map in 1907.

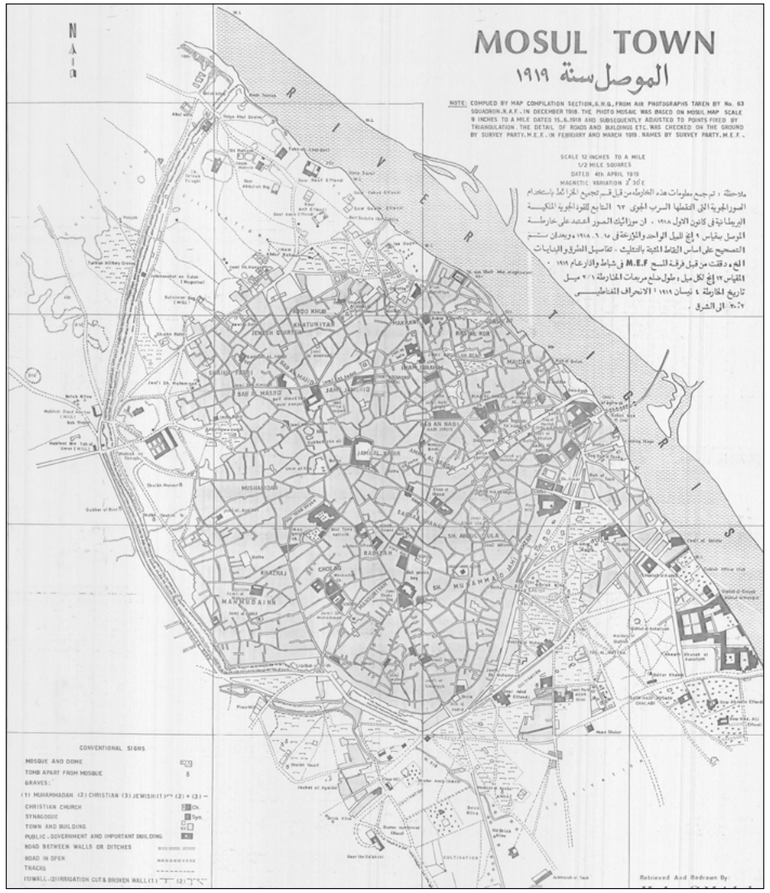


Fig.33 Mosul map in 1919.

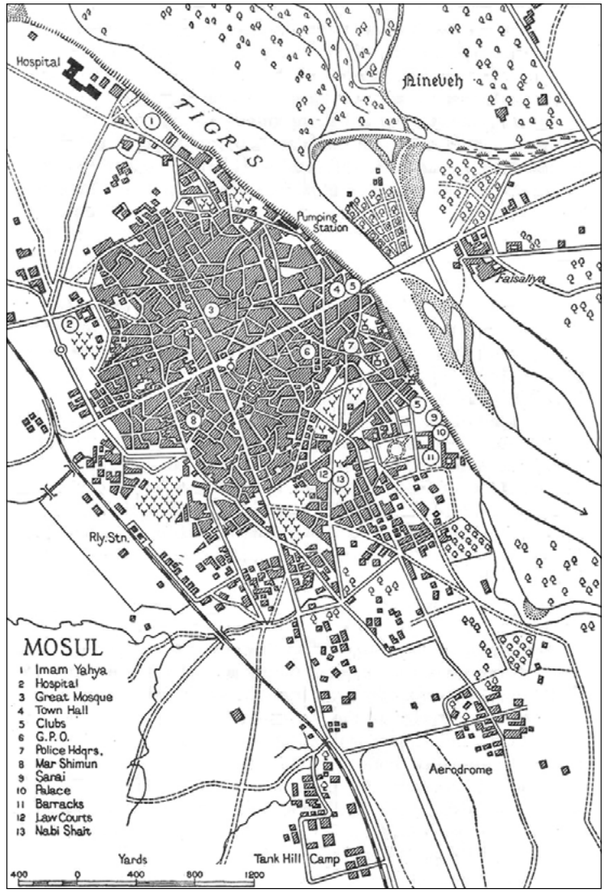


Fig.34 Mosul map in 1944.

MOSUL CITY PROFILE

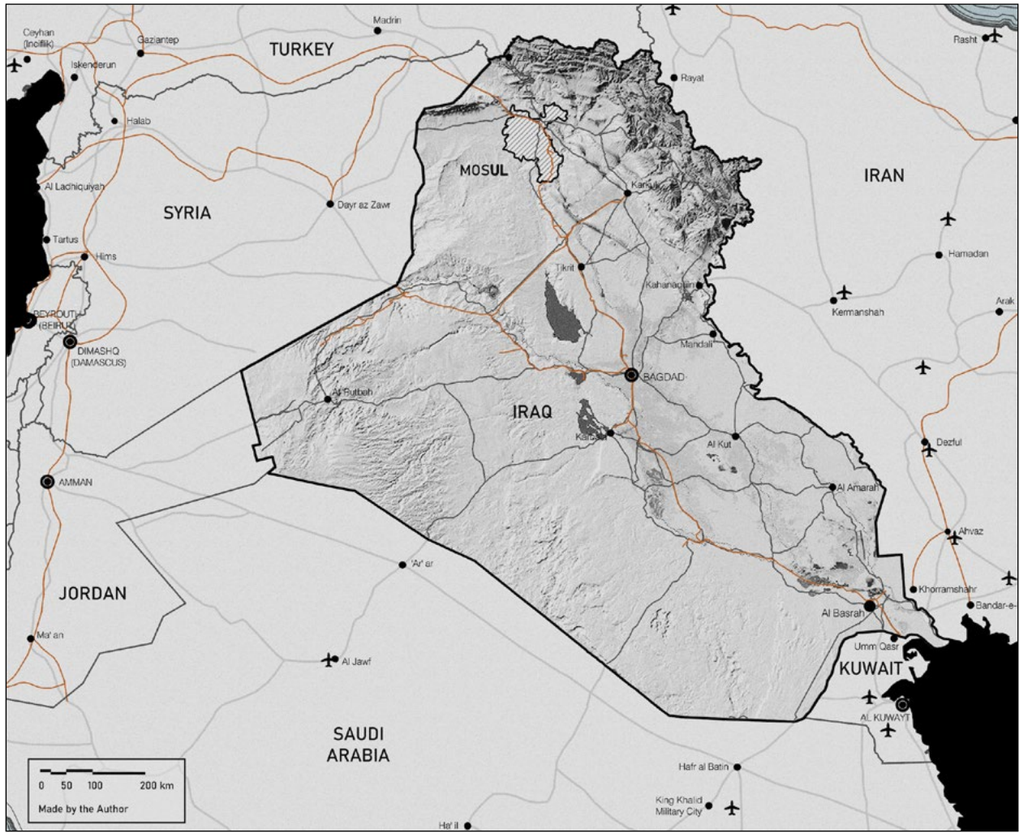


Fig.01 Geopolitical map of Iraq and main infrastructure system.

2.1 Geographical Profile.
Country of Iraq & City of Mosul.

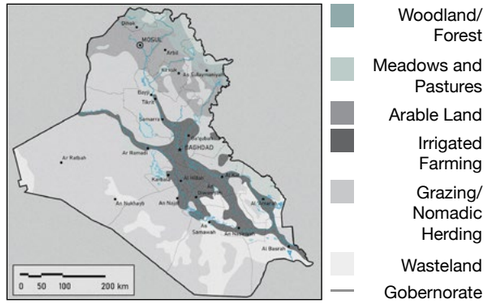


Fig.02 Iraq land use map.

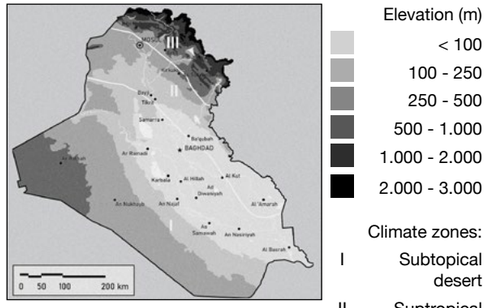


Fig.03 Iraq climate and elevation map.

Iraq is one of the easternmost countries of the Arab world. The country it's bordered to the north by Turkey, to the east by Iran, to the west by Syria and Jordan, and to the south by Saudi Arabia and Kuwait (Fig 01). The total area of Iraq is 437,072 square km, of which 432,162 square km of the land surface. Moreover, Iraq has a tiny sliver of coastline of approximately 58 km along the northern end of the Persian Gulf. For administrative purposes, the country is divided into eighteen governorates, of which three (Arbil, Dahuk, and As Sulaymaniyah) are gathered in an autonomous region in the north and the other fifteen governorates are in central and southern Iraq. This division corresponds roughly to the rainfed northern agricultural zone and the irrigated central and southern zone.

Four physiographic regions can be identified analysing Iraq's topography. Wide sandy expanses lie in the desert zone of the country, towards its west and southwest regions being part of the Syrian Desert. The northern part is dominated by uplands, including the watersheds of the Tigris and Euphrates rivers to the Syrian border. The northern highlands constitute the third region, characterized by a series of elevation rises interspersed with steppes, giving way to mountains that reaches 4,000 m high near the Iranian and Turkish borders. Lastly, the fourth region unfolds along the lower Tigris and Euphrates rivers, the alluvial plain. The area, which is a large delta, includes lakes and marshlands, extending from north of Baghdad southward

towards the Persian Gulf. About 13 per cent of Iraq's land surface is classified as arable, with permanent crops covering 0.78 per cent of the overall land surface[1] (Fig 02).

The climate in Iraq is mainly of the continental, subtropical semi-arid type, with the north and north-eastern mountainous regions having a Mediterranean climate (Fig 03). Rainfall is very seasonal and occurs in the winter from December to February, except in the north and northeast of the country, where the rainy season is from November to April. Average annual rainfall is estimated at 216 mm, but ranges from 1 200 mm in the northeast to less than 100 mm over 60 percent of the country in the south. The current population of Iraq in 2021 is 41,179,350, with an overall increase of 2.97 percent in the last ten years (Fig 04).

The population is predominantly centred in the alluvial plain and the northeast, leaving the western and southern desert regions very sparsely inhabited. The two official languages of Iraq are Arabic and Kurdish which, in terms of ethnicity, Kurds and Arabs constitutes the majority. Ethnic minorities include Turkmen, Sunni, Shabak, Chaldeans, Assyrians, Armenians (Fig 04).

1 Federal Research Division, Country profile Iraq (Washington DC: United States Library of Congress, August 2006), 4-6.

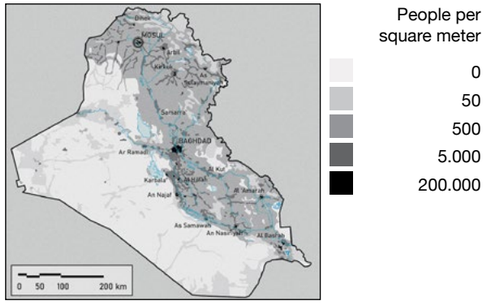


Fig.04 Iraq demographic density and distribution map.

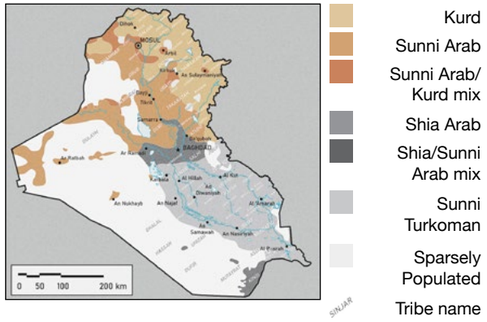


Fig.05 Iraq ethnoreligious groups and major tribes map.

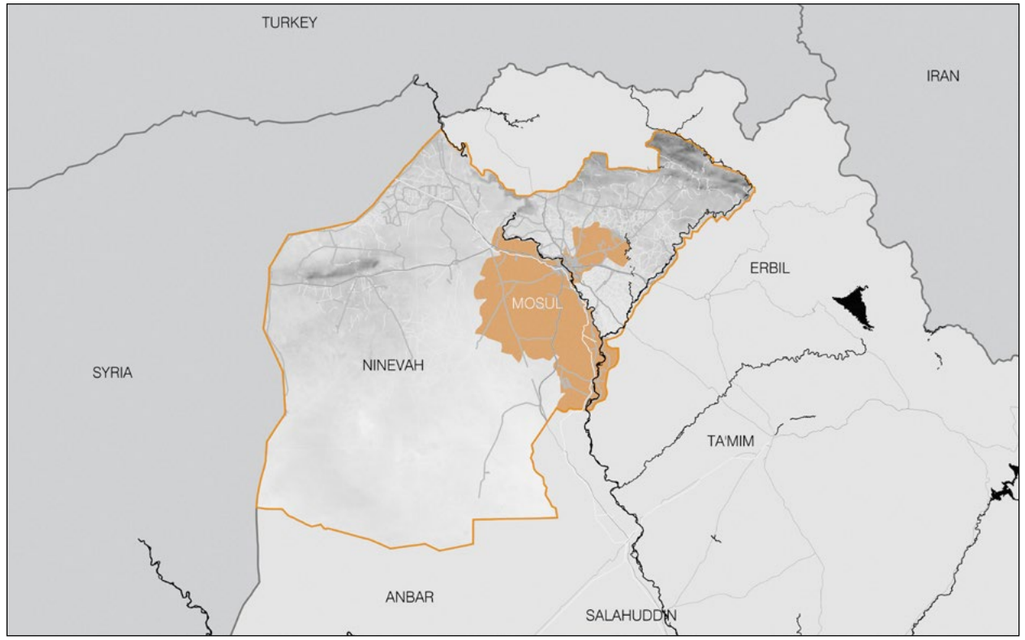


Fig.06 Geopolitical map of Nineveh governorate.

- Nineveh Governorate Profile.

Located in northern Iraq, Nineveh is the third largest and second most populated governorate, home to the ancient Assyrian city of Nineveh (Fig 05). The province is divided into nine districts: Sinjar, Telafar, Tilkaif, Al-Shikhan, Hatra, Al-Ba'aj, Akre, Al-Hamdaniya, and Mosul.

Agriculture, especially cereal production, is a key component of Nineveh's economy. The governorate produces sugar cane, sunflower, vegetables and herbs. Nineveh is an ethnically, religiously, and culturally diverse territory, with large populations of Arabs, Turkmens, Assyrians, Kurds, and Yazidis both in towns and cities, and

in their own specific villages and regions[2].

- Mosul City Profile.

The city of Mosul is the provincial capital, one of the Iraq's principal cities located approximately 250 miles north of Baghdad. Mosul District is the most populated of Nineveh's nine districts with a population of about three and a half million, making it the second largest city in Iraq in terms of population (Fig 06).

The city is installed in a valley, the historical center of Mosul occupies the left bank and the ruins of Niniveh are on the right. The city has several titles known to it, such as 'um al-Rubaien', because of the mild weather in the spring and autumn, or 'Al Fayhaa', which means paradise or heaven.

The Mosul agglomeration is surrounded by a network of small towns. The largest towns are located on the main roads that link Mosul to other important cities. The highway 1 connects Mosul to Bagdad, the highway 2 to Irkil and the road 80 to Kirkuk. This axis are important for the circulations inside the city itself and for the commercial and cultural connection to the region and toward other important cities of Iraq. Mosul is also connected at a bigger scale by two airports, the International airport of Mosul and the Bashiqah airport, and by a train station.

Located on the banks of the Tigris River, became notorious for the picturesque historic and religious sights, with relicts of centuries of ancient civilisations right outside the city borders.

2 Inter-Agency Information and Analysis Unit, Ninewa Governorate Profile (Baghdad: IAU, November 2010), 1.

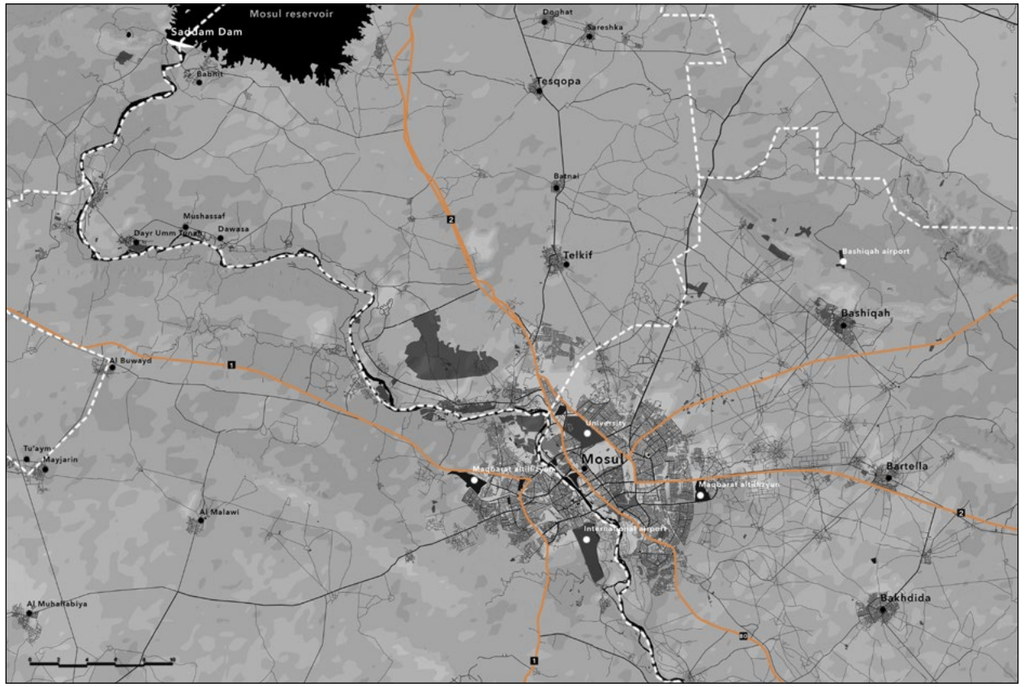


Fig.07 Map of the Mosul region, the reservoir created by the dam occupies a large area upstream of the city.

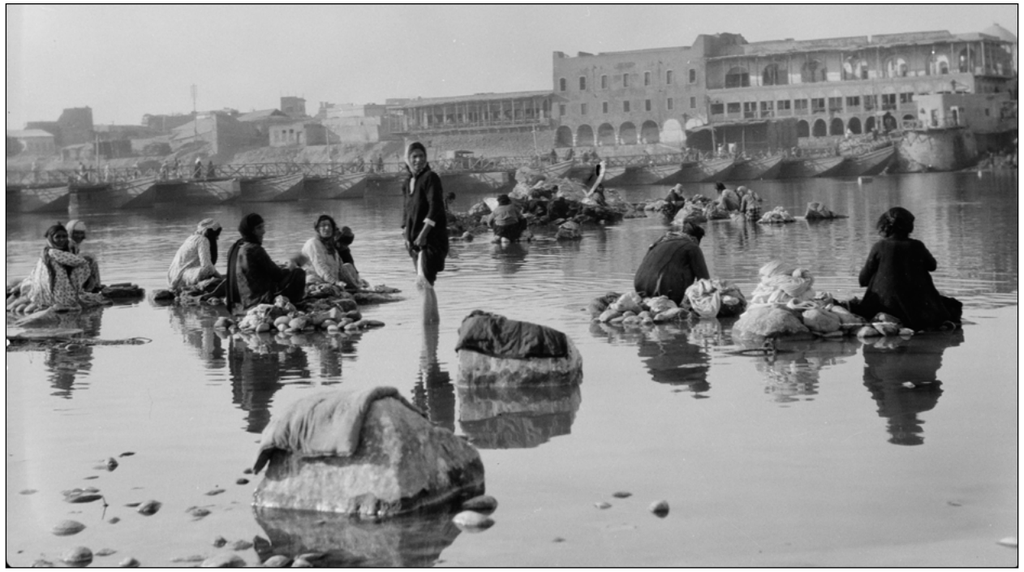


Fig.08 Iraq. Mosul. Mosul bazaars and river scenes on the Tigris, The Tigris , 1932, Wash day, women washing clothes in the river.

- The Tigris River.

The region of Mosul receives its water provision from the Tigris River. This river, long of 1750 kilometers, is created by the melt of the snow in the Esaster Turkey. In Mosul, the Tigris River flows from the South to the North at the average discharge of 1,014 m3/s and a maximum of 2,779 m3/s. This importance of the discharge and the periodic floods make the borders humid and auspicious for the agriculture. Numerous smaller canals irrigate the fields located further from the river bed.
Historically the Tigris iver is a very important commercial connection between Turkey, Iraq and Syria. This waterway was very important for the exchanges between Mosul and Bagdad. The exports and imports from the two cities contributed to their economical expansion.

It is easy to understand the etablishment of the urban fabric considering the flooding area. Mosul

Fig.09 Washing wool on the banks of the Tigris River in Mosul, Iraq, 1932 the Tigris banks women activities.

is built at proxomity of very fertile lands, in the precise area that does not risk to be submerged by the water (Fig 06). The river provides water for all the activities of the city but does not represent a direct threat for the buildings and the habitations. The river banks always had a very important role in the city. With the drying of the climate of Mosul, the management of this ressource has became even more important. The river is crossed by 5 bridges and different ferries services.

The uses of the river are multiples, they include irrigation, laundry and fishing. It also played an important social rolespecially for women. The water in Mosul was considered as proper for domestic and and drinking uses but nowadays some hydrographic studies shown the important impact of the war on its quality. «This deterioration of the river water quality in the city of Mosul is due to discharge of sewage and to hospitals effluents».[3]

3 Reem A.A. Al-Shanona, 2020 The environmental status of the water of Mosul

- A Diverse Agriculture.

The Tigris is a powerfull river that does not have a fixed contour. The banks are very fertile areas that also include temporary islands. The majority of this green lands is used for agriculture and the swamps are tranformed in pools for aquaculture. Mosul was recongized as «one of the most the most fertile cities in Iraq, and many scholars believe the legendary Hanging Gardens of Babylon were built near the city».[4] Even is the war, and more specifically the use of chimical weapons, radically changed the situation, the agricultural production remains very diverse and important.

Some initiatives are taken by the municipality to restaure the agriculture and the eco-system, planting seeds. The challenges are not only environmental but also economic as the decreased agriculture production forces Mosul to import from Turkey and Iran many items such as poultry, dairy, grains and meat. «We don't want to rely solely on oil and want to support our local farmers and improve our agriculture production to export food rather than having to import.»[4]

The main historical food productions in Mosul are zucchini, onions, honey, wheat and potatoes and many families grow grapes in their backyards. Nineveh stills the largest producer of wheat in Iraq with «500 Ton of wheat and barley in 2018»[4] and 65 per cent of its total area dedicated to fields and agriculture.

4 Hassan Ali Ahmed, 2020, Mosul sowing seeds post-Islamic State, Al Monitor

Fig.10 The Tigris banks, 2020, the Tigris banks close to Mosul with the fields and green areas.

Fig.11 The Tigris banks, 2020, the Tigris banks close to Mosul with the swamps.

Fig.12 The Mosul surrounding, 2014, the surrounding of Mosul is composed of agriculture lands and a network of small towns connected by highways.

- The Aridity in Mosul.

In the West of the Mosul agglomeration the climat is arid. There are fewer green areas and the network of the towns is less dense. It is very obivious looking at the map (Fig 12) that the road system is also less compact. The agriculture and the occupation of the land is generally less important than in the East side of the city. The East part is more irrigated and has a quite dense system of roads and towns. The majority of the fields are concentrated on this region, around the river and the Bashiqah airport.

More recently the city suffered «major natural disasters including droughts and locust swarms» that contributed to deep the disparity and complexify the agriculture production. The «environmental damage by the Islamic State (IS) has contributed to its deforestation, turning it into a semi-arid city.»[4]

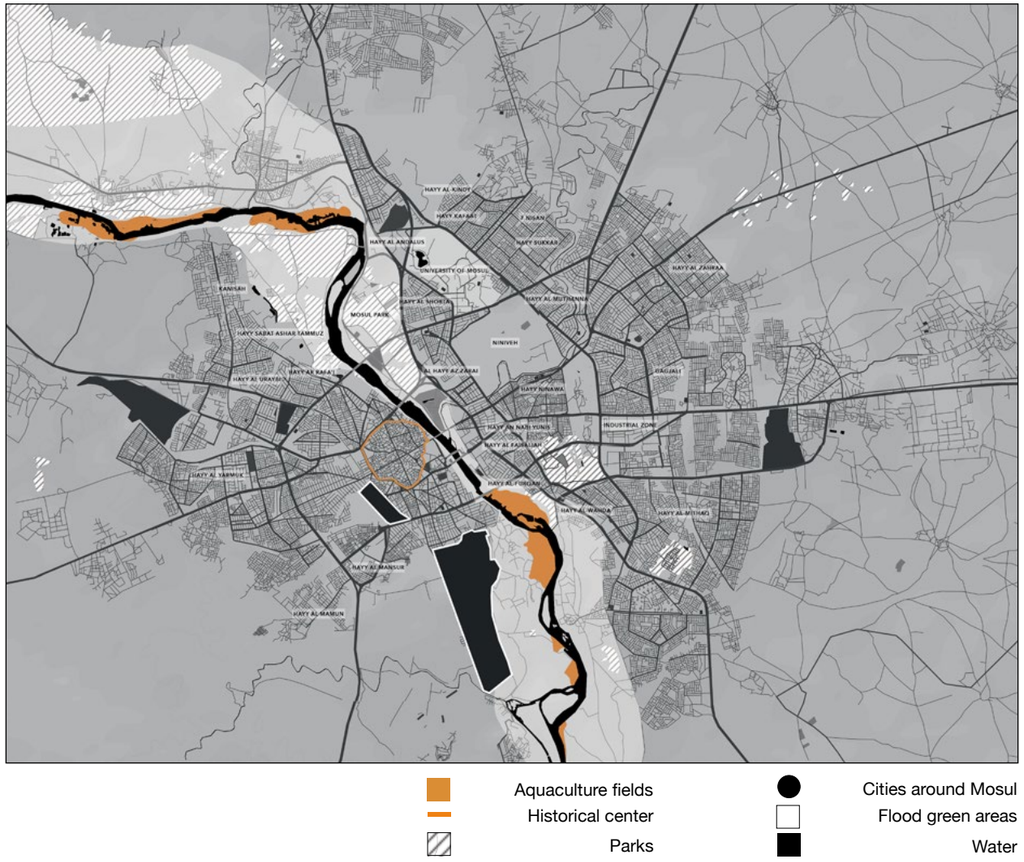


Fig.13 Map of the Mosul surrounding and the green fertile areas created by the floods of the Tigris

2.2 Mosul Urban Morphology.

Mosul Morphological features and surroundings.

Due to its geographical position, Mosul has served as an outstanding commercial centre at various times in its history. The export of oil, agricultural, mineral, and industrial goods are the most recent sources of income, with oil as a primary contributor to local economic development since the 1920s. Mosul district is also particularly known for its pharmaceutical industry and sulphur extraction and manufacturing.

Mosul has a hot climate with extremely dry hot summers (record high 49°C) and moderately wet, relatively cool winters (avarage low 12°C). The city is officially divided into eight administrative sectors, however, the city is widely perceived to be divided in two distinct parts, a right bank and a left bank, separated by the Tigris River with five main connecting bridges.

Mosul city is renowned for its cultural, social, religious, and ethnic diversity. Historically, it had a mixed population of Arabs (mostly Muslim Sunnis); Kurds (mostly Sunnis); Turkoman (both Sunnis and Shi'ites); Shabak (Shi'ites); Assyrians, Arman, Chaldean (Christians); and Yazidis. Demographic information, however, is a sensitive matter in Iraq in view of the country's sectarian and ethnic conflict. There is a scarcity of accurate statistical evidence on the city's ethnoreligious composition.

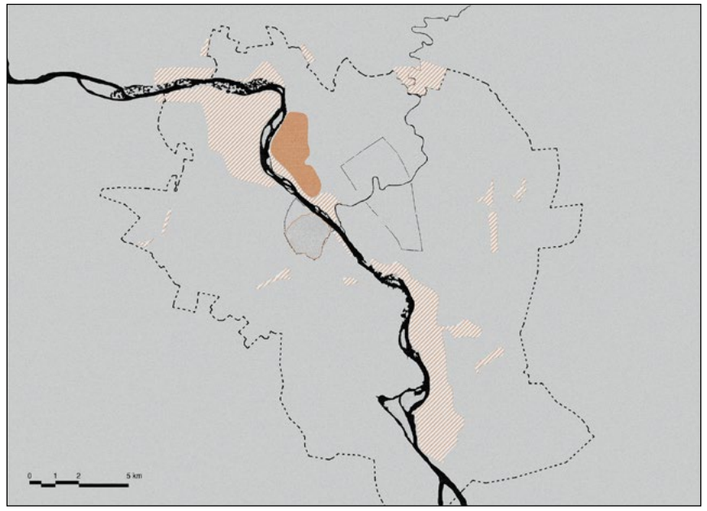
Currently, the city population is estimated to be 1.683 million in 2021. Like in other parts of Iraq, Nineveh suffered large-scale displacements of its population long before the wave of displacements inflicted by ISIL. Many Christian families were forced to leave as Iraq descended deeper into ethnic and sectarian conflict, especially in 2008, becoming a target for the city's armed militias. However, despite the migration flows, the city's population did not decrease and according to the Nineveh Directorate of Statistics, the people who moved to Mosul after the former regime's collapse (after 2006 particularly) outnumbers the amount of people who left.

Local residents stated that some of the newcomers to the city became radicalized and later joined Al-Qaeda, participating in the ongoing sectarian conflict. A few even took on a leading role in the fight helping ISIL take over the city in June 2014[5].

The living conditions of the citizens of Mosul declined dramatically with the rising costs of basic goods and services (particularly education, healthcare, gas, food and drinking water) which made everyday life extremely difficult. People spending is mainly reduced to food since they can't afford anything more, and unemployment has risen with the majority of the remaining jobs terribly low paid.

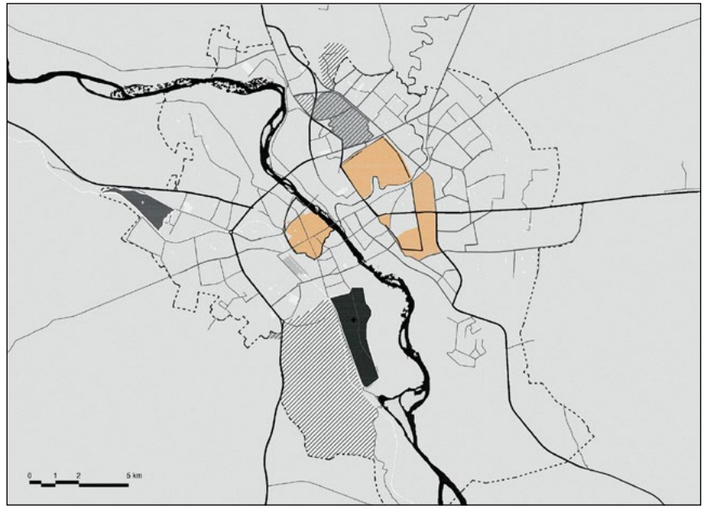
5 United Nations Human Settlements Programme in Iraq, City Profile of Mosul (Nairobi: UN-Habitat, October 2016), 21-22.

Many facilities for education, health care, water, sanitation, electricity, and communications services are currently destroyed or significantly limited by ISIL. It is estimated that between 50 and 75 per cent of the city's governmental buildings are destroyed. This will exacerbate the challenges of future stability, rebuilding, and growth in Mosul.



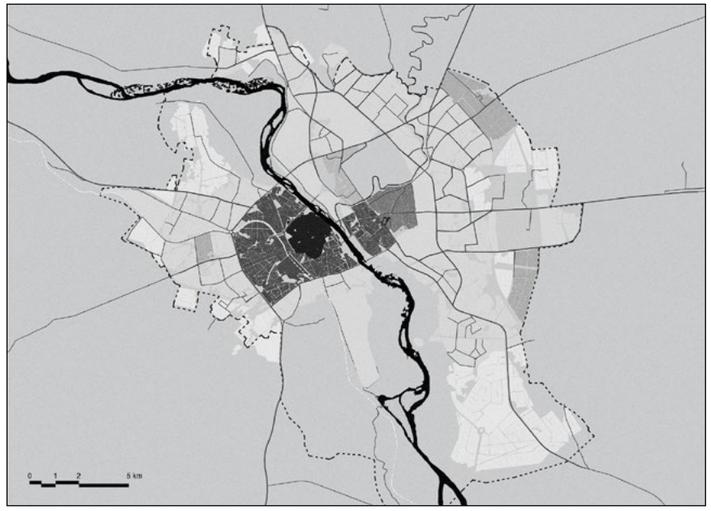
Forest
Green Area
River
Municipality Boundary

Fig.14 Geen areas



Historic Herritage
Educational University
Educational Schools
Government
Airport
Train Station
Military
Cemetery
Municipality Boundary

Fig.15 Public facilities

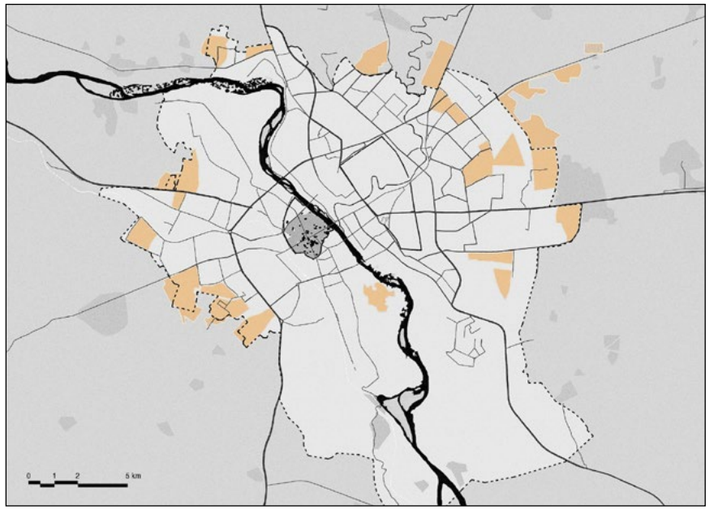


Historic Centre
1950's
1960's
1970's
1980's
1990's
2000's
Municipality Boundary

Fig.16 Urban expansion

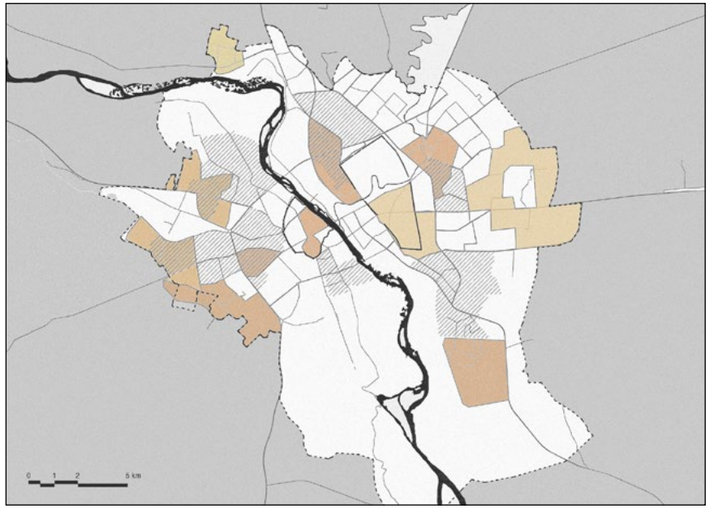
Surrounding Settlement
River
Main Road
Minor Road
Unpaved Road
Railway
Municipality Boundary

Fig.17 Road infrastructure



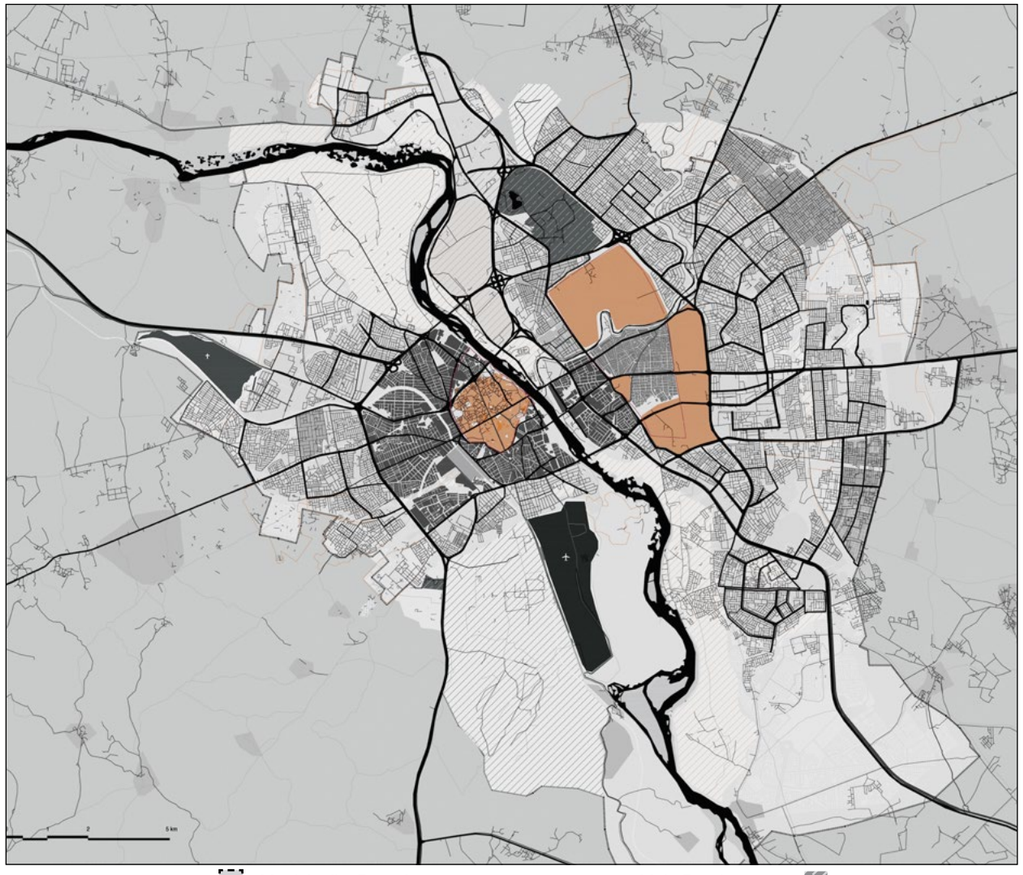
Surrounding Settlement
Informal Settlement
Historic Centre
Municipality Boundary

Fig.18 Urban settlements



ISIL Supporters
Turkmen Shia
Christian
Kurdish & Shabaks Shia
Turkmen Sunni
Arab Sunni
Municipality Boundary

Fig.19 Ethnoreligious prevalence (pre ISIL)



Municipality Boundary
Surrounding Settlement
Informal Settlement
Historic Centre - Herritage

Main Road
Minor Road
Unpaved Road
Railway
Airport

Educational University
Government
Green Area
Military
Cemetery

Fig.20 Morphological map of Mosul.

2.3 Mosul Historical Center.

The structure of the Historical Mosul city.

Mosul, as presented before, can be seen as an example of islamic city. The historical city has been developed on the right bank of the Tigris River and presents the traditionnal features of the Islamic architecture mixed with influences of its very diverse communities.

Since its creation, the city of Mosul has been ruled by many civilisations that left their traces in the urban settlement and in the architecture. The layers of History remain visible and the recent extension of the modern city toward the West conserve the historical nucleus.

The historical city of Mosul presents a high concentration of mosques, churches and synagogs, that proves the long past of cohabitation between the religions and forms a network of high value monuments.

«Moreover, Mosul, and particularly its Old City, is the physical representation of the cultural diversitythat characterized Iraq. Throughout 2500 years, Mosul was the melting pot of diverse cultures and groups, representing Iraq's pluralistic identity and co-existence among its various ethnic, linguistic, and religious groups.»[6]

6 Iraqi State Board of Antiquities and Heritage, 2018, Old City of Mosul

Fig.21 Ruins of Nineveh with Mosul in the background, 1929.

The Urban Implantation

Courtyards.
Important feature of the Islamic architecture, the courtyards are numerous in the historical center of Mosul

Buildings.
The historical center of Mosul has a very dense urban fabric mixing housing, religious monuments and commercial activities

Streets.
The street network is divided in three categories, the main axis, the secondary streets that are also very commercial and the tertiary streets that are more introverted and narrow

Implantation.
The historical center of Mosul expanded from the left river bank of the Tigris toward the West

Tigris river.
The Tigris river is an important element for the development of the city and for its implantation

Fig.22 Axonometric plans of the historical center of Mosul, showig the different layers of the urban fabric

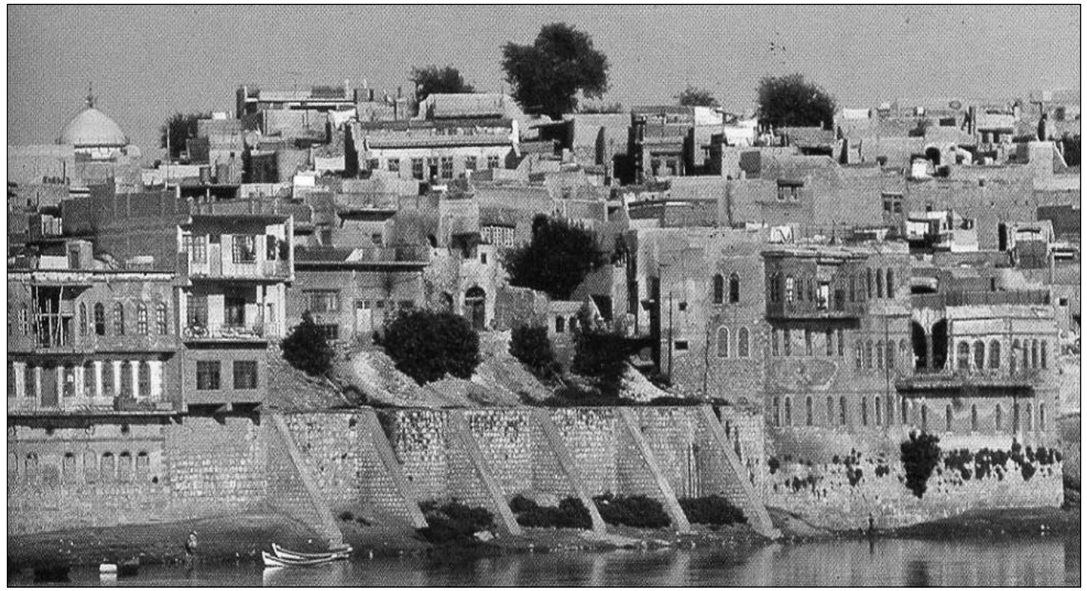


Fig.23 Old city of Mosul on the Tigris river, 2006.

- The historical center.

Mosul has two important historical poles, the ruins of Niniveh, on the right river bank, and the historical center of the left river bank.

«In subsequent centuries, the old city, surrounded by a wall until the 19th century, retained the medieval architecture and layout of its historic nucleus to which Ottoman buildings were added. Until very recently, Mosul was one of the most populous urban centers of the region, and, it was known for its places of knowledge and learning, commerce and exchanges. Its Old City was distinguished by its medieval city plan, the concentration of Islamic buildings spanning the 12th to the 19th century, religious buildings of other religious communities (particularly Christian), Ottoman domestic architecture and an extraordinary multifarious ethnic and religious mixture of inhabitants.»[1]

Fig.24 Map of the building in the historical center of mosul

Fig.25 Map of the streets in the historical center of mosul

- The Built Enviroment and the Streets.

The streets of Mosul have a complex development that connects the neighborhoods.

The streets can be classified in three main categories. First the main axis that link the historical city to its surroundings, the first one from North to South and the second one from East to West.

The secondary streets delimitate the blocks of buildings. They are very important for the social and commercial life. Most the of shops of the city are located along their course (Fig 26). As the high density of the city does not allow a lot of free floor areas, the streets are also important for the community as they represent the main public spaces.

Inside the blocks, the tertiary streets are more narrow and intricated, they are not as commercial than the secondary but provide more introverted spaces. The most ancient part of the historical city, located in the East, has the hightest street density and is the result of the spontaneous expansion of the urban fabric toward the West (Fig 25). This development did not follow a legal planning and resulted in a very complex arrangement.

- The Cul-de-Sacs.

The cul-de-sac organization is a traditionnal feature of the Islamic cities. They are very widespread for housing neighborhoods, often

Fig.26 Map of the density of the steets in the historical center, the urban fabric that borders the Tigris river is the more dense , historically it is the first area that was developped and expanded toward the West.

Fig.27 Map of the shops o f the historical shops of Mosul, they are mainly located along the main axes and the secondary streets.

Fig.28 The cul-de-sac or dead-ends configuration is present and easy to identify in the Mosul historical center.

Fig.29 Maps of the courtyards of Mosul and their important in the city, specially in a very dense urban fabric.

narrow, they provide an introverted urban spaces.

The histocal center of Mosul has multiple exemples of this configuration also called dead ends (Fig 27).

«The Old City of Mosul, with its intricate labyrinth of small streets used to be a very well preserved heritage environment. In contrast to other towns in Iraq, it had been little affected by modernization, and retained much of its traditional ethnic and religious heterogeneity. The network of streets, alleyways and cul-de-sacs represented one of the best examples of the spontaneously-grown pattern of cities in the Middle East.»[1]

- The Courtyards.

The courtyard is another very important feature of the Islamic architecture and part of the islamic traditions and lifestyle (Fig 28). Very present in the historical center of Mosul, it provides an introverted alternative to traditionnal spacement between the buildings.

Fig.30 Market street in West Mosul, Iraq, 2017, crowded street of the second category with a lot of commercial activities.

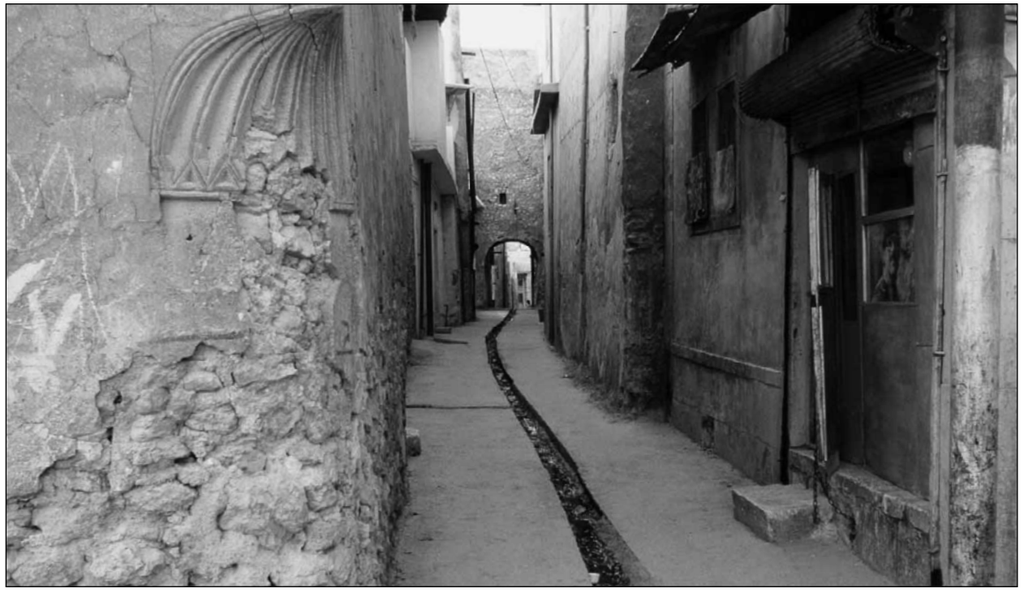


Fig.31 Street view of an alley near Imam Awn al-Din Mashhad in Mosul, with water drainage and the remains of a historic exterior, 1983, very narrow and intimate street of the third category.

REBUILDING THE HISTORICAL CITY

Reconstruction for Souk Area of the Historical Center

3.1 The Impact of the War.
The siege of Mosul

In 2014, Mosul, was taken by the Islamic State in Iraq and the Levant (ISIL). During two years ISIL ruled the city. It was in Mosul, in July 2014, that Abu Bakr al-Baghdadi (ISIL Leader) made a public appearance, inside the Al-Nuri mosque, to pronounce «caliphate» in Iraq and Syria.

During the occupation of the city the population decreased from 2.5 millions inhabitant to 1.5 millions. Most of the refugees that escaped the city fearing the upcoming siege of Mosul stayed in camps or were trapped in fighting lines between the Iraki army and the ISIL combatants. The ones who stayed «lived through hell on earth, enduring a level of depravity and cruelty that is almost beyond words»[1] declared the United Nations high commissioner.

- A volontary destruction of Mosul's history.

A massive destruction of the building heritage has been caused by the battle for the liberation and the bombing but the occupation of the city also contributed to it. ISIL began, almost immediately after they took control of Mosul, to destroy hundreds of historical monuments such as mosques, tombs, churches, and even non-religious ancient sites. Beside the ideoligical reasons behind this destructions, those actions were an easy way to capte the world's attention.

1 Zeid Stress, July 2017, Accountability and reconciliation key to heal Iraq's ISIL wounds

The Al-Mufti mosque, the Nabi Yunis Tomb-Mosque, or the Al-Nuri Minaret and great mosque have all been parts of this deliberate destruction and theft of the cultural heritage. However, the monuments were not their only targets, some of the most important artifacts of the museum of Mosul have been destroyed or stolen to be sold in order to finance the war. In the the library of the university of Mosul, 3 millions of books have been burnt. This loss of knowledge, artefacts, and artworks is immeasurable.

"The first step in liquidating a people is to erase its memory. Destroy its books, its culture, its history"[2]

- The Battle of Mosul.

In October 2016, almost two years after the capture of the city, the movements to liberate Mosul began to emerge. Different Iraki forces participated to the liberation of Mosul, (Iraqi Security Forces ,Peshmerga fighters, Popular Mobilization Forces) ,helped by U.S. and its allies, providind soldiers, and airstrikes support. The battle of Mosul started in its eastern suburb (Fig.0 November 2016).

After five months of war, the estern side of the river was liberated (Fig.0 February 2017). After April 2017 the area controlled by ISIL decreased a lot as they were surrounded in the historical city. Because of the maze shape of the historical center, the liberation had to be made house by

2 Milan Kundera,1979; The Book of Laughter and Forgetting

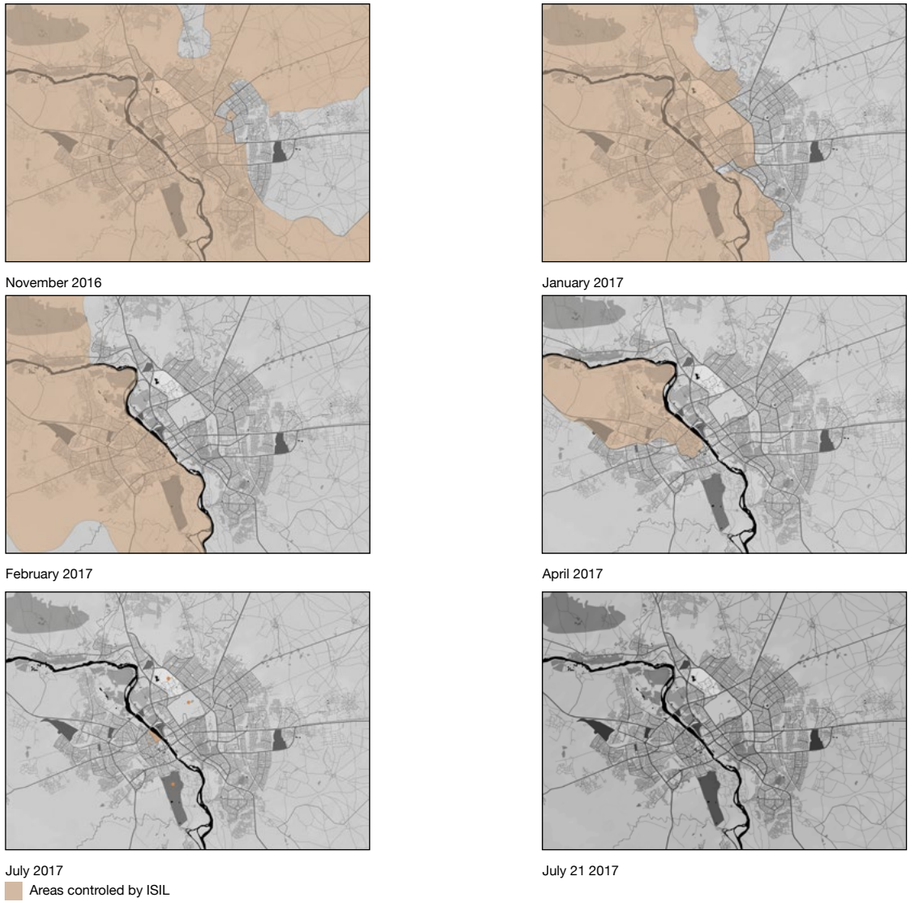


Fig.01 Maps of Mosul showing the spatial progress of ISIl from november 2016 to July 2017.

house, street by street. On the 22 June 2017 in a last provacation, ISIL organised the explosion of the Al-Nuri mosque. One month later, the Iraki prime minister declared the liberation of Mosul.

In July 2017, after 8 months of warfar between ISIL and the Iraqi forces, Mosul was liberated. The conflict left the city with very severe damages, mostly in the historical center and on the side of the Tigris River. The United Nations estimated the destruction of 5,000 buildings in the Old City center. The urban identity and the history of Mosul have been severely endangered by the war.

- A Destroyed City.

The destructions are impacting the built heritage at every scales and made most of the constructions dangerous and unsuitable for any use. The destroyed monuments are diverse : churches and monasteries, mosques, minarets, libraries, archeological and medieval sites such as Niniveh ruins etc.

The lost of this heritage «is defined as a war crime against the people of Iraq, whose heritage is a symbol and medium of identity, history and memory. These destructions are linked to the suffering and violence on human lives, and weaken the society over the long term.»[3]

The destructions are affecting the city in all of its activities as the cultural, religious, residential, educational and commercial buildings are touched. The touristic actitivies, large source of revenues for the Mosul are also suspended. The city had «no basic services, no food, no water and no fuel.»[4]
The war against ISIL disturbed a lot the food production system and the agriculture beyond the shift of the climate.

The first damage has been the destruction of many farms around Mosul. The second was the interruption of the Niniveh Directorate irrigation system and the third, the destruction of the biodiversity and the pollution of the water and soil that continue to impact the region.

This destructions also provoked a lost in the traditional agriculture techniques and the local authorities are active to reintroduce this activies. «The reviving of the honey production contributes directly to the revival of the agricultural sector and local markets, also providing more jobs in the city.»[5]

3 Director-General of UNESCO condemns new destructions in the ancient city of Nineveh, Iraq, 2016, UNESCO

4 Iraq: UN refugee camp opens twelfth camp as displacement escalates in West Mosul, 2017, UNESCO

5 Hassan Ali Ahmed, 2018, Mosul Recovery: A National campaign to remove harmful plants, Mosul Eye

Fig.02 A view of a commercial street of Mosul after the libertation , August 2017.

Fig.03 A depiction of the devastation in Mosul after the Battle for Mosul, 9 th July 2017.

Fig.04 A general view of the destruction in Mosul's Old City, 9 th July 2017.

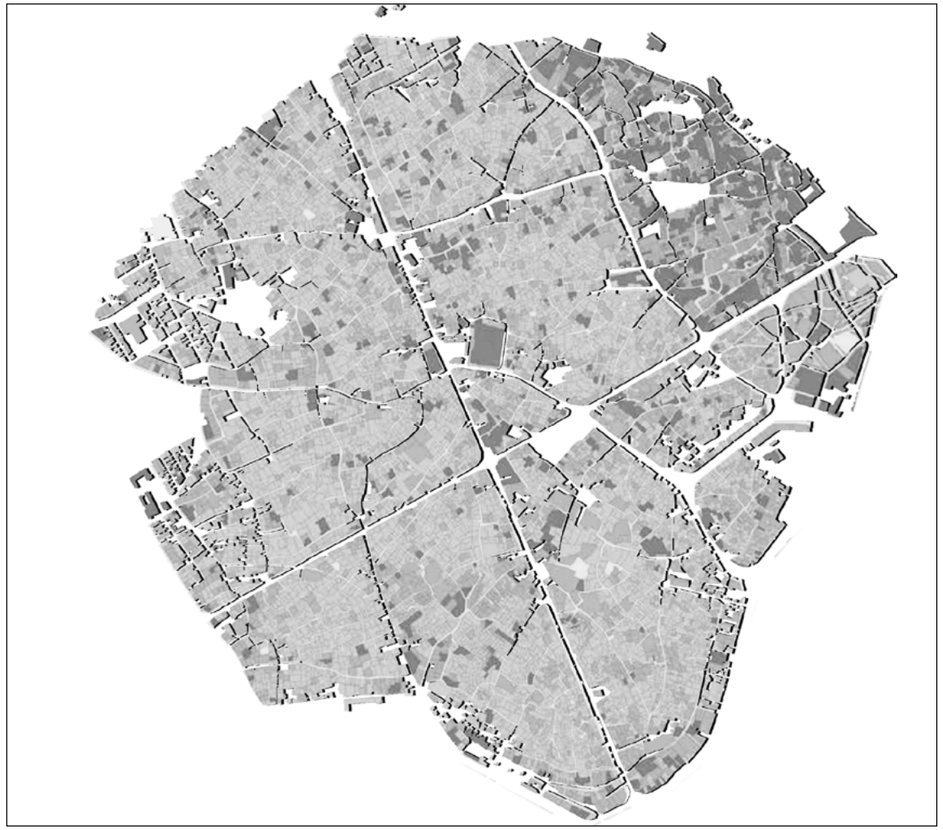


Fig.05 Map of the building damages in the historical center of

- Neighborhood Historical Divisions.

The historical center of Mosul is divided in historical neighborhoods that traditionnally correspond to the different corporations of workers. Nowaday this divisions are not effective anymore but the identity of each of them remains.

Historically the neighborhood of the city were administrated separetly, giving them a lot of autonomy and independance.

- The effects of the war.

The independance and the introversion of each neighborhood was re-inforced during the war with ISIL. The instability of the spatial occupation and the progressive liberation «neighborhood by neighborhood» encouraged the auto-sufficience and the isolation.

During the war the neighborhoods of the center were the first ones to be evacuated, only 10 % of their inhabitants were not displaced. This area also suffered the worst damages during the war.

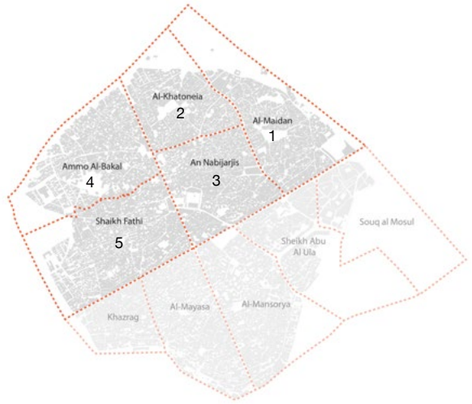
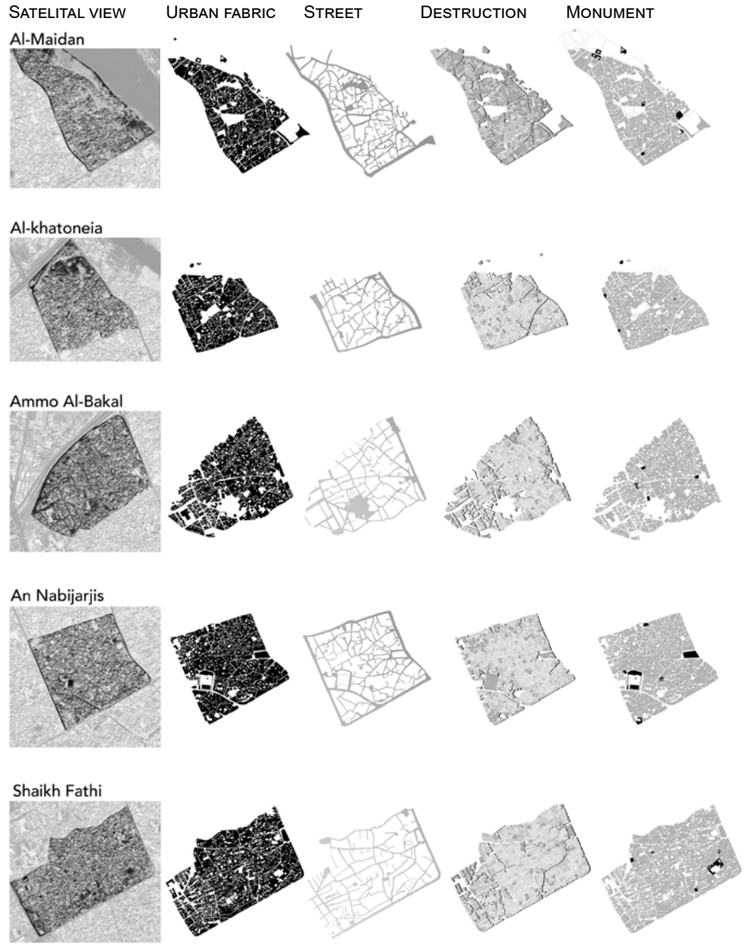


Fig.06 Map of the historical neighborhood divisions of the historical center of Mosul.



- Christian Neighborhood.

During the Iraq war against ISIL, the religion diversity of the old city was compromized. The most drastically touched areas were the ones occupied by christians and jewish. «ISIS gave Christians in Mosul four options: leave, convert to Islam, pay a tax or be killed.»[6]

«“That’s because we gave concessions and lived as Dhimmi second-class citizens. This is no longer valid today, especially since the view of the Muslim neighbors is inferior towards the Christians in the land that we have been living in for 2,000 years. We still use Aramaic, the language of our ancestors. It is difficult to feel that you are not welcome in your land.”

Dhimmi is the Islamic term used to refer to Christians and Jews. It means “protected person”—someone tolerated as a second-class citizen.»[1]

This events created a lot of tensions and fractured the agreement between the communities, re-inforcing the spatial boundaries.

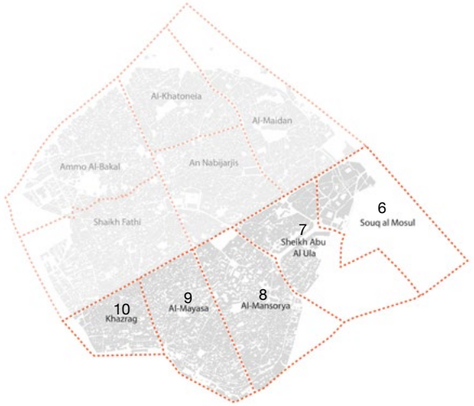


Fig.07 Map of the historical neighborhood divisions of the historical center of Mosul.

6 Christians of Mosul, Iraq, Still Displaced, August 2019, The Tablet

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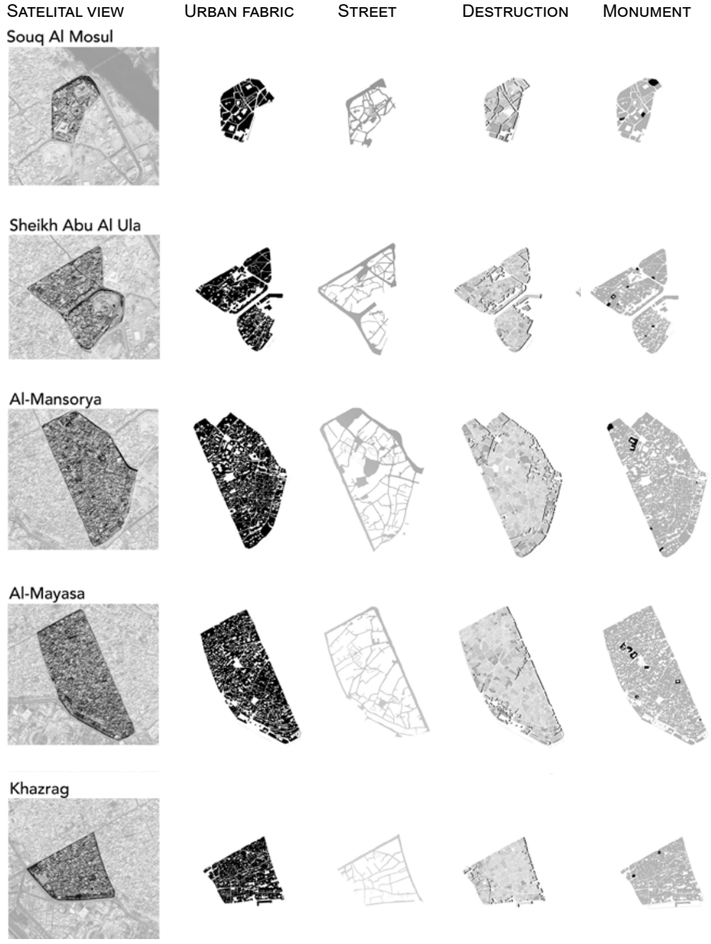


3.2 Reconstruction Theoretical Models.
Post-War Reconstruction Models.

The following part is dedicated to the exploration of reconstructon issues in the scope of both urban and architectural scale reconstruction. The handful ideas will be illustrated on the examples of various case studies, the approaches for the long-term post-war reconstruction as well as for a single building or a single neighbourhood.

For a delicate and full analysis of the case studies that are illustrated in the further sub-chapters, it is necessary to understand the roots and the backgrounds of the reconstruction and restoration theories - the principles and approaches developed by the architects and historians during the times when reconstruction has just inititated to gain its value and importance in history, when it was a new science.

Before the 19th century the interventation on behalf of a preexisting building was set in continuity with it, both as an answer to functional demands and as an architectonical expression. Even the most important refurbishment plans were ment to create something new, and not to reproduce what was before; after the 19th century the interventations on behalf of a preexisting building was oriented to the transmission to the future: the past is considered different from the present; values that are considered the most meaningful were granted.

- John Ruskin_Conservative Approach

John Ruskin maintained that architecture provided a nation with memory; nations could live without architecture and worship without architecture, but could not remember without architecture. In order to gain from the knowledge of the past and protect one's own memories, modern man should recognize the architecture of the past as modern man's inheritance and preserve it as a living memory of the past.

In his works "Seven Lamps of Architecture" 1849 and "The Stones of Venice"1853 (Fig.08) he introduced his approach towards restoration practice.

"For, indeed, the greatest glory of a building is not in its stones, not in its gold. Its glory is in its Age, and in that deep sense of voicefulness, of st ern watching, of mysterious sympathy, nay, even of approval or condemnation, which we feel in walls that have long been washed by the passing waves of humanity."[7]

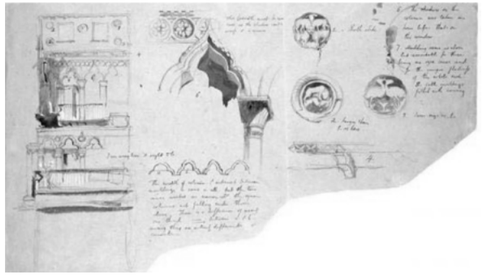


Fig.08 John Ruskin, studies for "The Stones of Venice".

7 Ruskin, J,Seven Lamps of Architecture, New York: Cosimo Classics2007.

- Eugene Viollet-le-Duc_Stylystic Approach

Viollet-le-Duc began developing his theories of restoration and preservation. In 1854 he published his ten-volume "Dictionnaire raisonne de l'architecture francaise du XIe au XVIe siecle", setting forth his theories on restoration and preservation. (Fig.09 and Fig.10)

"To restore a building is not to maintain it, repair it or remake it: it is to re-establish it in a complete state which may never have existed at any given moment."[8]
"After evaluation of the monument value and message, the restoration should clarify the message completing the missing part to reach a style uniformity, eventual reconstructing the damage portions or removing the addition."

Fig.09 Viollet-le-Duc, Pierrefonds before restoration.

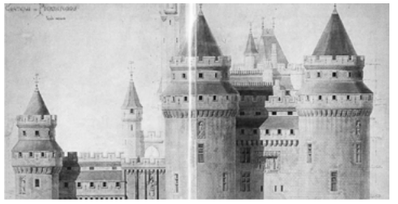


Fig.10 Viollet-le-Duc, Pierrefonds after restoration.

8 Viollet-le-Duc,E, Dictionnaire raisonne de l'architecture francaise du XIe au XVIe siecle, Books On Demand2015

- Camillo Boito_Philological Approach

Boito searches for an intervention method that makes sure authenticity comes to no harm. His theoretical approach is known as "Philological Restoration", and establishes seven fundamental principles towards guaranteeing the preservation of the documental value of a historic building. Unlike Ruskin, he accepts the practice of restoration, however calls it a "necessary evil".
A central role is played by historical value: all findings made during the restoration process must remain visible and identifiable. In this sense, the artistical value of the entire site is subordinate to that of the parts found. He puts the following question on the table of discussion: it is better to restore using the same style and materials, or it is better to clearly show the additions?

Fig.11 Camillo Boito, 1857, painting of Pompeo Calvi.

"Additions or renovations must be completed with a different character to the one ofthe monument, noting that, if possible, the aspect of the new forms must not steal too much attention with their artistic aspect."[9]

9 Boito, C, 1886, in Pane 2009: 150

3.2.1 Case Studies of Urban Reconstruction in Europe.

Post-war European Models.

After WW2 a great number of european cities, having become the victims of long-lasting bombing campaigns, were left in ruins. A widespread destruction all over countries participated in the war reduced the cities to rubble, including masses of housings, schools, hospitals, infrastructure systems, and cultural monuments.[10]
Everyone after the war participated in the reconstruction process - decent urban reconstruction became the most foremost goal ever faced not just by planners and town authorities, but as well as by citizens, property owners, workers. A never-ending list of questions of how to approach the reconstruction pose an intimidating challenge for planners and policy makers. Starting by, simply, how to clean the debris and what to do with them, ending by if historic cities should be rebuilt in a way to retain their historic character, and if so, do all historic buildings have to be rebuilt the way they were before the war?
In 1975s a new wave of scholarly interest in what historic cities had experienced during the war and postwar reconstruction in Western Europe emerged. By the mid-1980s, scholarly work on reconstruction was being done all over Europe.[11] Most of this work consists of detailed studies of developments in single cities or countries, or comparisons between the cases.

Provided that reconstruction is an individual phenomenon strictly related to the specific context conditions and policies, international debates and discussions gave the opportunity to urban planners, architects and scholars all over the planet to share their knowledge and experience, to argue about various issues and approaches, its results and consequences.

In this chapter we will address some of the approaches and theories emerged during these debates in the post-war european countries, discuss its opportunities and limits on the example of several case studies.

On one hand, the post-war reconstruction in Europe was led by the idea that war provided us with new unique opportunities to reform the city and the society. The question is not just to re-built of what was before, but to take the opportunity to redesign, rewrite the city from scratch - to change and to make radical changes. So this is like the tabula rasa, a flat land where the planners could do what they wanted - erase the streets, demolitions of boulevards and the neighbourhoods - in other words, they stood for the radical change and radical redesign. This approach assumed that the reconstruction provided the opportunity to redesign the city not simply in terms of forms, but in terms of how it works; in terms of economy, in terms of society. We can look at the examples of the cities of Rotterdam and its reconstruction plan by Cornelis van Traa of a completely new built city centre, where the new density and a new transportation network is set, or the example of Hamburg, where the reconstruction process initiated during the war when planners were thinking in terms of not “re-building” or “reconstructing” the old city but in terms of “building new cities” and trying out new ideas over the debris of old, unplanned and dull cities.

10 Diefendorf, J, Rebuilding Europe’s Bombed Cities, Palgrave Macmillan UK, 1990.

11 Diefendorf, J, Urban Studies Vol26 N1, 1989, p.129.

Fig.12 Carlo Maggiora, from “Zibaldone”, 1947. Debates on the reconstruction of Florence.

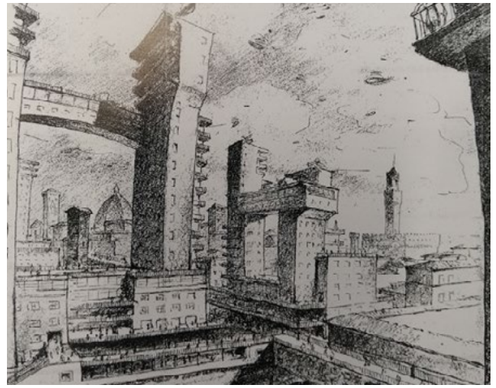


Fig.13 Carlo Maggiora, from “Zibaldone”, 1947. Debates on the reconstruction of Florence.

On the other hand, if we take french wartime rebuilding process as an example, we will note that the two-direction approaches are working simultaneously and even find a mixture of technocratic and beurocratic modernism with a conservative aesthetic. This can be explained by the fact that from the planner’s point of view they wanted to modernize the transportation network and create modern housing in the damaged cities, while the government stood for promoting regional architecture that would affirm and convey profound french values.[12]

Therefore, those two approaches were sometimes bringing conflicts, for instance, as in the Loire valley, when the roads were facing the desire to be broadened, they had to demolish historic buildings sacrificially. However, sometimes the projects managed to stay in accord with two-dimensional concerns. Another example is that, in pursuit of the prominence of historical path, the outcome can result in the excess mimicry. Speaking of the city of Warsaw, which historic centre

12 Diefendorf, J, Rebuilding Europe’s Bombed Cities, Palgrave Macmillan UK, 1990, p.7.

was reduced to ruins by the systematic campaign of destruction - 700 out of 957 monuments were destroyed, where the planners, trying to rebuilt and to create the narrative of the polish history and identity, reproduced the exact historical polish facades of the old city centre based on the old paintings and taken there before.

These post-war examples express the potentials and the spectrum of approaches for reconstruction. In fact, during the reconstruction period after the World War II, it is noted an increasing number of design experiments objected at rediscovering those qualities of the physical environment through a renewed relationship with local history and traditions.

Moreover, the theme of reconstruction is becoming extremely important in the architectural field still nowadays. The complexity of contemporary life as well as of the physical and climatic realities changes provide constant involvements and alterations of the cities. Every city we see today is the result of the yearly processes of reconstruction. Nowadays, cities are demonstrating a tendency to lose their urban identity in favour of a homogenization of forms and spaces. So, the problems of how to transmit the memory and values of the places, how to safeguard the identity of the place during the reconstruction process become more and more essential in the contemporary debates. Establishing the preliminary strategies to transmit the memory and values represented by places therefore becomes an essential skill in ensuring that this intangible heritage can be maintained and conveyed.

"The future depends in part on us, as we depend in part on the past: tradition is this perpetual flow and being modern is to consciously feel that we are participating, as active elements, in this process".[13]

Also, political and economic instabilities that in some Middle Eastern regions have caused an imbalance in social dynamics, rendering the architectural heritage of many historical cities into a state of emergency. The city of Mosul has suffered severe damages from a series of deliberate acts of violence due to the war against ISIS. The destructions mostly affected the Old City, the historical centre.14 This demands a design action capable to restore the identity of the place, to avoiding the limits of imitation of the historical standard towards a more experimental approach that would ensure a dialogue between the architectural project and its context, and as such the appropriateness of its outcome in terms of urban identity, , whereby the word reconstruction identifies a gesture aimed at a rehabilitation of the architectural artifact in its physical and symbolic condition.

So, this part aims to illustrate and discuss the methodological design approaches involved in architectural reconstruction or transformation

13 Rogers, E. N. 1958. Esperienza dell'Architettura, 2nd ed., Milano: Skira, pag. 254.

14 UN-Habitat and UNESCO, Initial Planning Framework for the Reconstruction of Mosul, 2018.

processes of the cities both in Europe after the World War II and in the Middle East that deal with the reconstruction modalities after the destruction period, the establishment of a new relationship between the new urban fabric and the historic one, between the urban fabric and the monuments and other aspects that characterize the settlement-related specialities of various contexts.
The biggest problem Stefano Bianca encountered in the city is the integration between the modern urban fabric and the historic one.

"Once it is established a relation between both urban fabrics allowing both for development of the new town and for rehabilitation of the old town, the remaining problems will be discussed with a greater chance of success." [15]

"A city (especially a historic centre) contains the 'spirit' of a culture because it acts as a collective memory for its own society and it shows the attitudes and common patterns of life, hence becoming the source of identity. If the urban fabric is destroyed, the sense of wholeness disappears, especially in traditional Islamic cities, where single buildings were always conceived as part of a comprehensive fabric." [16]

The cases presented in this chapter aimed to help us to formulate a methodology in the reconstruction approach to the city of Mosul focusing on the relationship between previous urban structure and reconstruction modalities. In other words, we analyse the selected case studies aiming to focus on the questions of whether the interest in preserving and maintaining rather than altering the historic fabric depends on the understanding of what shaped the form of that city and sets the future rules. Or, on the other hand, whether the decision is taken pushed by the research to recognise the neccesity for architecture that is capable to respond to the contemporary needs, the new functions and new aesthetic demands.

The outcome of any reconstruction operations can generally be classified within a spectrum whose limits may be summarized as an excess of mimicry, otherwise, as being excessively self-referential (with self-referential meaning an intentional or coincidental lack of reference to the existing urban fabric and built environment). As such, the case studies presented here are categorised in four sections, based on the reconstruction plans' treatment of the historic urban structure and historic identity of each case.

The first section introduces the cases that tend to redraw exactly the previous urban elements on the examples of the city of Saint Malo in France and Munster in Germany. The reconstruction plan for both cities assumes the extreme and deliberate preservation of the urban fabric, according to the principle of "how it was, where it was".
However, despite the fact that today this approach would be considered prudent, there are speci-

15 Bianca S. Urban Form in the Arab World, 1st ed., London, Thames and Hudson, 2000.

16 Bianca S. Urban Form in the Arab World, 1st ed., London, Thames and Hudson, 2000.

fic reasons that made this approach of sur place et a l'authentique prevail over others in both cases.
From _**sheet 01 St. Malo** we see the city of intra-muros arrangement, which rendered it impossible to create something completely new and treat the city as tabula rasa. Moreover, St. Malo, having always been a city of one author, with its urban and stylystic coherence and homogenuity, would not allow an architect to "carry on with the already defined plan of his dreams"17 but rather to face the problem with devotion and selective respect. Following this logic, it seems that the reconstruction of St. Malo has earned its purpose, the "face" of the city is recognisable. In case of Munster the objectives of reconstruction were shaped by the economic reasons.

The second category stands for the cases that respect the previous urban fabric, it shows the attempts of d deliberate reading and understanding of the urban structure followed by some pivotal modifications and alterations. On one hand, the methodological approach for Dresden and Florence treats the previous urban fabric and previous volumetric compositions as models for the newly introduced elements. The precedents are setting the standards for future designs that strictly respects it. Initiated from some replicas in the end the attempt adopted was to "reproduce" rather than the reconstruct precisely what was existing before - "to reproduce the space where the citizens could recognize themselves" prevailed. For instance, in _sheet 02 Dresden we can note the maintenance of the main street and public open spaces organisation, the dimensions in terms of street width and height is respected. However, the building blocks are altered by leaving the inside empty to enable a better quality of the residential areas and avoid the chaotic organisation of the previous times. This refusal of "how it was, where it was" but accurate respect of the historical urban structure made it possible to combine the traditions with modern social aspects - the proposals, evoking the erstwhile cityscape in terms of volumetric arrangement, familiar typology and shapes, however with introduction of new modern design element.

On the other hand, the strategy of decisive modernisation and tabula rasa treatment can be seen in cases of Rotterdam and Frankfurt. _sheet 03 Rotterdam shows the extent to which the city was destroyed – a complete central void, almost no traces of the previous streets arrangements. Nevertheless, the basic urban composition and elements are still readable, though the implication of major changes took place. In _sheet 04 Frankfurt the project for Area of Dom-Romerberg-Bereich shows a radical way of "re-establishing" the urban fragments by combining the pioneering beliefs of modern design and respect to the old tradition.

The third section illustrates the case studies that attempt at proceeding with the interpretation of the previous urban structure. The reconstruction plan for the severly damaged city of Warsaw initially assumed the transformation of the city into a large modern town with a metropolitan status - it was still intended to remain the capital of Poland.18 We can see in _sheet 05 Warsaw how the planners, led by the guidlines of determining the proper proportions between recreation of the historic city and transformation of that city, tried to transcribe the exisitng urban fabric of the city. The careful selection of what of the historic city to be preserved what what can be abolished and substituted with the constructions of urgent demand, together with the assetive insertion of new city axis (such as East-West Thoroughfare) and indenspensable modifications of some areas resulted in a urban reconstruction plan, that is able to provide guidelines for the further growth of the city and consolidate the strong emotional links of the inhabitants with their homeland.
During the exhibition of the plan in Chicago in 1946, L. Mumfird wrote:

"In the new plans of Warsaw, the facts of modem social life constitute the backbone of the whole structure .... In the plans of the Warsaw Bureau for the Reconstruction of the Capital, the architects begin at the foundations, and basing themselves on nature and man's essential needs, find an expression of the epoch."[19]

Other attempts at critical interpretation of the urban fabric is illustrated by the two french examples of Maubeuge and Le Havre. In both cases first, the elements to be preserved to serve as the models and to set the rules for the further urban fabric are selected and adopted. For instance, in _sheet 06 Maubeuge Andre Lurcat, keeps the surrounding city walls and the main central axis of the city, while abandons the typical intra muros plan and goes for a modern utopian perspective design on the inner city. Similar approach is taken by Auguste Perret in _sheet 07 Le Havre, where, be means of several trials, the historic axis and alignment are selected to be saved and the new design calling for the new urbanity and monumantlity is implemented for the entire city. The absolute architectural unity, due to both cases being the work of a "single author", established a great composition and illustrates the potentiality of the plan-project relationship approach that can solve the city in architectural terms.
Ultimately, the radical view over reconstruction pocess is discussed on the proposals of Le Corbusier that, though remain only theoretical, are clearly illustrating the possibility of passing from theoretical models towards concrete projects and opportunities for intervention in real life. His reconstruction plans for _sheet 08 St. Die, start from the almost complete tabula rasa situation, proposing a radical reorganisation of the cities, led by the modernist ideas of zoning, infrastructure hierarchy, fucnctional space division etcetera.

Thus, we see that prior to address any reconstruction project it is necessary to formulate precautionary strategies aimed to transmit the memory and values represented by places. It becomes an essential skill in making sure that this

17 Mamoli, M, Trebbi, G, Storia dell'Urbanistica L'Europa del Secondo Dopoguerra, EditoreLaterza1997, p. 98.

18 Diefendorf, J, Rebuilding Europe's Bombed Cities, Palgrave Macmillan UK, 1990, p.88.

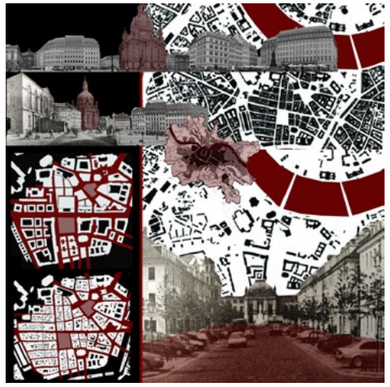
19 Mumford, L, 'Warsaw Lives Again' (1946).

intangible heritage can be maintained. First of all, on the example of the cases we see how it is necessary to identify what is salvageable, and, therefore, should be restored and maintained. Then, the preliminary analysis of the urban structure and its generative principles allows architect to insert clearly new parts. However, whether it is a language or a plan, the new insertion is not characterised by mimicry or copy-past the old to the new, but by identifying the invariable character of the city and interpreting it. This part intended to have a look at the treatment of the morphological and typological invariants of urban fabric, the way the planners read it and re-propose, preserving the information stored in the form of urban environment and urban fabric and transform it to adapt for the future demands.

LIST OF CASE STUDIES OF URBAN RECONSTRUCTION IN EUROPE:

Name of the sheet:	Name of the section:
01 St. Malo, France	EXACT REDRAWING OF PREVIOUS URBAN ELEMENTS
02 Dresden, Germany 03 Rotterdam, the Netherlands 04 Frankfurt, Germany	RESPECT OF PREVIOUS URBAN FABRIC
05 Warsaw, Poland 06 Maubeuge, France 07 Le Havre, France	INTERPRETATION OF THE PREVIOUS URBAN FABRIC
08 Saint-Diè, France	DENIAL OF PREVIOUS URBAN STRUCTURE

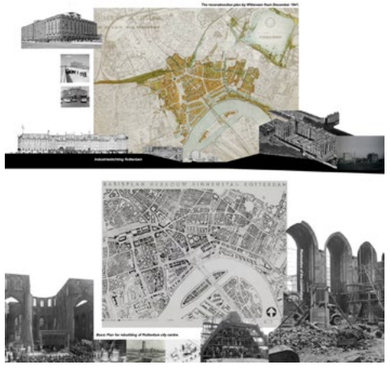
01 St. Malo, France



04 Dresden, Germany

07 Warsaw, Poland

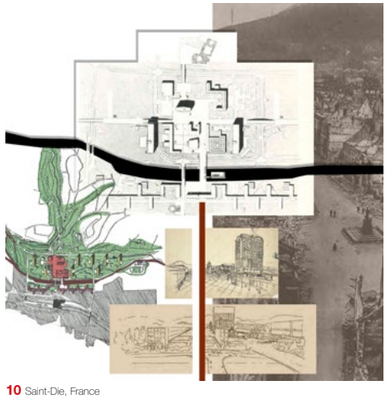
08 Maubeuge, France



05 Rotterdam, the Netherlands

06 Frankfurt, Germany

09 Le Havre, France



10 Saint-Die, France

Fig.14 Case study gallery. Presenting the features of different possible urban reconstruction methodology.

LOCATION OF CASE STUDIES

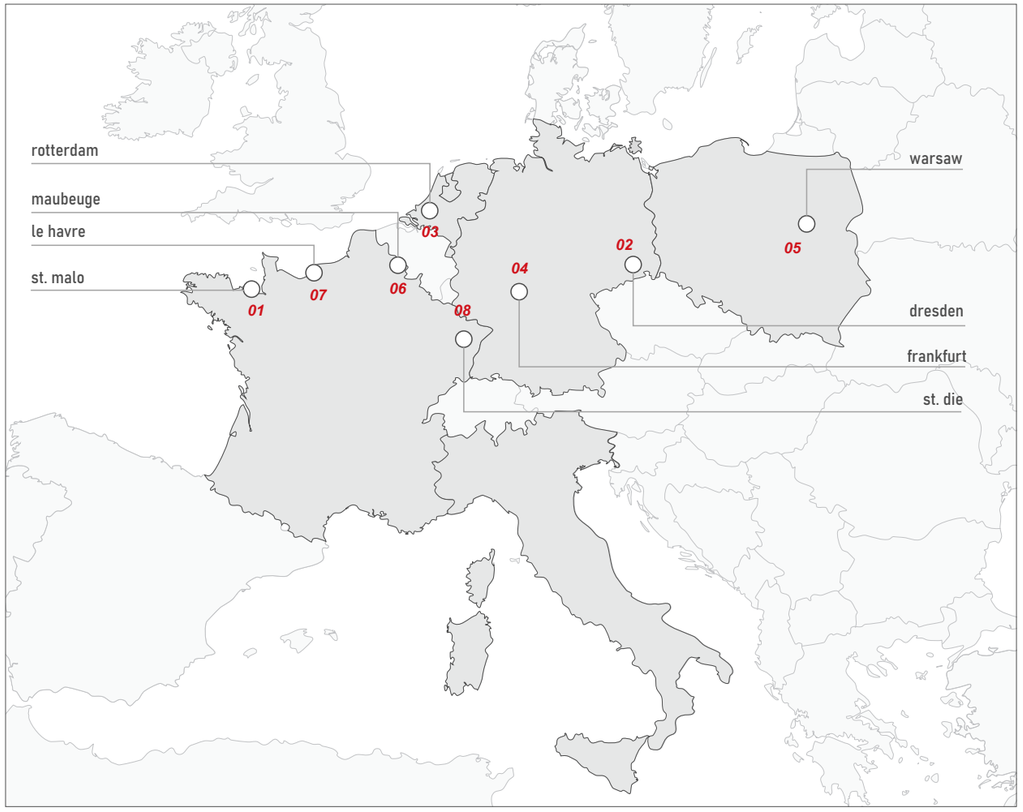


Fig.15 Map of locations of case studies of urban reconstruction in europ

Exact Redrawing of Previous Urban Elements

examples of St. Malo & Munster

01 SAINT MALO, FRANCE

1960s Louis Arretche

The ancient city of St.-Malo located on the Brittany coast of the English Channel, was turned into ruins during the WWII. By 1960 it had been entirely reconstructed by an architect Louis Arretche.
Initially, the main criterion for the rebuilding was standing for the *"maximum conservation"* of the monuments, such as old city walls, rampats and castle that were considered recoverable. However, this strictly conservative attitude extends towards the general startegy for the historic centre.
Starting from the remains - facades and riuns - the previous alignments were confirmed: the buildings, even of little remains, were reconstructed *sur place et a l'identique*. Starting from these permanences, the rest of the road and street system readable by the old traces, was maintained with slight modifications, such as the expansion of principal roads, the elimination of alleys and small courtyards of old buildings in favour of large blocks permeable to pedestrians via covered walkways. The reconstruction project, aimed at revival of the traditional silhouette of the townscape, esablishes several parameters to which each building has to adapt in order to ensure the unity of the whole: slate for the covers, grey stones visible on the facades etcetera.
The work made by Louis Arretche in Saint Malo is significant since it marks a critical step towards more careful reflections not only aimed at the simple repair of lost assets but at a reconstruction of the urban image as a whole, the preservation of the genius loci of the townscape.

Fig.16 St. Malo before the destruction.

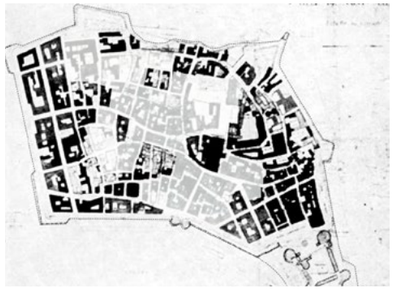


Fig.17 St. Malo after the destruction.

Fig.18 reconstruction plan of St. Malo by Arretche.

02 DRESDEN, GERMANY
1990s

The reconstruction of Dresden, where about 85% of the historic city was destroyed, was led by the main principle of conveing the history to the future generations. Here the term *"retention"* can be added that refers to the power of memory keeping and supplement of continuity. The city's *"redesigning"* includes the interaction between the urban spaces and built environment - the focus of municipal development was the creation of urban spaces of variety and flexibility of use.

"More important than the contour of the building is the space between the buildings. This is the area that actually determinates the city's livability, a precondition for the inhabitants to identify with their neighborhoods." [20]

In the Altstadt the Frauenkirche is not intended to be the sole monument to dominate the wide area. The aim is to rather recreate the entire organism that it was part of, based on the still recognisable old wall system. The latter is consists of both the historical streets and buildings and the buildings of "modern design", respecting the horizontal and vertical regulations, allowing the main landmark of Frauenkirche to be at the focus of an appropriate framework.
The particularity of the Dresden's approach is by reconstruction of the few of the replicas of the original buildings to define the standards and the proportions of for the new additions. Replicas are integral part of the entire ensemble, they serve as models.

20

Fig. 19 pre-war Dresden's Altstadt (Frauenkirche in red)

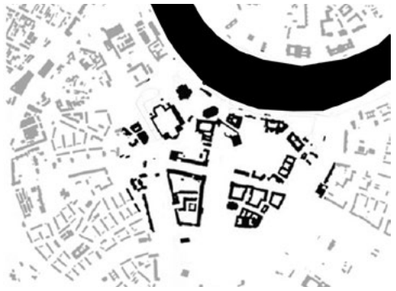


Fig. 20 destroyed Dresden's Altstadt

Fig. 21 reconstructed Dresden's Altstadt (Frauenkirche in red)

03 ROTTERDAM, NETHERLANDS
1946 Cornelis van Traa
Proposals by Kleihues & Rossi

Rotterdam, having been bombed in May 1940, tackled its reconstruction in the most rigorous and consistent manner and allowed new ideas concerning functional planning. It had never been renowned for its urban beauty, which is why so much of the city was treated as *tabula rasa* for a new, better, more beautiful world. The entire plan was considered much more of an economic matter than an aesthetic one.

Rotterdam wanted to become the only metropolitan city of Netherlans, so the used Modernism as the major one. Modernism in all its aspects to become a huge metropolitan city. The ultimate goal – skyscraper. The american metropolis.

The Basic plan by Cornelis von Traa implied the pioneer ideas for planning, that is, a regular grid, zoning etcetera. The idea of the old city triangle was abandoned more fully. The street pattern was transformed into a more regular grid of major traffic arteries. An important intervention was the realignment of Coolsingel in the direction of Schiedamsedijk that was a so-called 'window on the river', from where people could experience the proximity of the river and the docks.
Also, the Basic Plan was so flexible that the street pattern evolved from city centre courtyards into the revolutionary, pedestrian Lijnbaan shopping development.

Fig.22 Rotterdam before the destruction.

fig.23 Rotterdam after the destruction.

Fig.24 reconstruction plan, Basic Plan by Cornelis von Traa.

However, what is more interesting about Rotterdam is the projects developed by various architects for the area of Kop van Zuid dockland in 1982.
_Kleihues

The plans of Kleihues represent a relatively small scale developments connected to the various public spaces of the Stadshavens. The names he to the various housing- and green domains express an aimed consideration for identity for these places, exemplary the “Maas prospect”, ´Ville rudimentaire”, “Konings nieuwsgierigheid” (Kings Curiosity) and “Plaats van Herinnering” Place of remembrance). This demonstrates the reading of Kleihues of the former docklands and his attempt to translation of the latter to a new image by the means of addressing to the pre-existing typology and morphology of the place.

_Rossi

The contrast which Rossi achieves by proposing a large scale, homogeneous scheme for the docklands and at the same time differnetiating various types of small scale architecture exemplifi es the relevance of the project not just in light of “a reading of the city” but also as a final goal which “only the urban life could shape” (Barbieri & Weeber, 1982, p. 55).

Rossi focusses on the plan as a goal for setting an image of the Stadshavens, an own domain with a clear organization, and the small scale infill of this structure, which was defined by his reading of Rotterdam Zuid.

Fig.25 Kop van Zuid dockland before transformation.

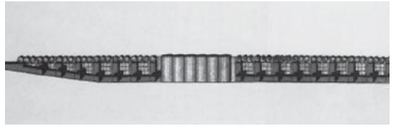


Fig.26 Proposed facade by Keihues

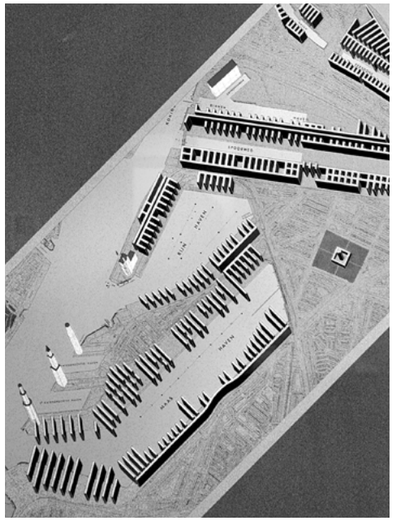


Fig.27 Overview of Rossi’s vision for Zuid.

04 FRANKFURT, GERMANY
1950s

As a result of heavy attacks of March 1944, Frankfurt meets heavy losses, especially in the historic centre. Immediately the questions of whether to return to the gothic and baroque direction of the traditional cityscape or to put the latter aside and make a new city are put to discussion.

Provided Frankfurt being a “birthplace’ of West German State, the americanized model of decisive modernization stands out in favor - to “start everything from scratch” means to create a new civil society.
The removal of the rubble goes together with the removal of some witness materials that features the historic city. The realization of major arteries and the reinforcement of the existing one begins to enable a better access to the centre; all the secondary roads are widened; buildings are merged into larger units suppressing the narrow alleys of the gothic design. With the new network the structure of the centre, though still based on the previous layout, is transformed into a powerful transport system.
The area of Dom-Romerberg-Bereich is chosen to become the new “centre of city culture”. The competition is launched in 1980. The winning solution by Bangert, Schlotz, Schultes & Jansen combines the allusions of old and new systems, manages to establish a dialogue with the city with a sort of “irony”, to re-establish the forms of traditions and that to meet the modern needs for entertaiment.

Fig.28 Frankfurt before the WWII.

Fig.29 Reconstruction plan Fluchlinienplan, 1948.

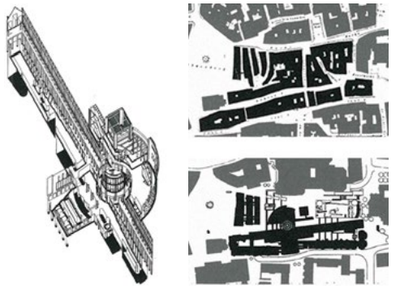


Fig.30 Project axonometry for Dom-Romerberg-Bereich.

Fig.31 Area of Dom-Romerberg-Bereich before anf after the WWII.

05 WARSAW, POLAND
1945-1949

Warsaw was almost completely destroyed during the Second World War, the destruction went beyond elsewhere in terms of qualitative features, the reconstruction aiming to re-tore the pre-war state and role of the city had no precedents or comparisons in Europe. The first plan of 1945 focuses on the reconstruction of the infrastructure with the realisation of the new axis east-west. The backbone of the road network consists of Marszalowska street extended to the noeth and widened up to 60 meters in section, that acts as a new north-south parallel. With the second plan of 1949 the new residential projects are realised in the centre along the Marszalowska street. Some of the old buildings are resuming the 19th century composition of the facades, but being modernized. They play between the re-proportion of the traditional character of the street and the style of “social realism”. The philological reconstruction of the Old Town, Old Market Square in Warsaw resulted in the excess if mimicry. It was designed on the basis of iconography - the frontal facades were rebiult by the study and copy of Canaletto paintings of the old town and other archival materials.
It is clearly understandable the desire of polish authorities to transmit the national historic polish forms of architecture to the future generations, however it is evident that this appraoch rises the visual solely architectural nature of the city above the historical, economic and social components of memory that architecture stores.

Fig.32 Warsaw before the WWII, 1938.

Fig.33 Warsaw after the reconstriuction, 1955.

fig.34 south front of the Market Square, fragments remained after the war; after the reconstruction.

Fig.35 the Market Square, before the war; after the reconstruction.

06 MAUBEUGE, FRANCE
1958 Andre Lurcat

The small French city of Maubege on the Belgium border was seriously bombed during both World Wars.
André Lurçat sets the reconstruction purposes according to the principles of rational urban planning – the fact that the *intra muros* part can be rebuilt according to the previous footprint is immediately refused. Instead, while retaining the surrounding historic walls, the inner urban layout will be changed in order to enhance the functional division and solve the precedent accessibility problems. Some activities will be taken out of the perimeter walls to constitute the new access to the historic city and at the same time to establish the new entire central structure.
In his perspective of designing a utopian city from which inequalities would be absent, Lurçat went so far as to raise the right bank of the Sambre and lower the left bank. A network of streets is recreated without taking into account the old one.
The new urban plan is extremely detailed – it defines and establishes the position and volume for each building to be built and, moreover, the activity to be held in there. The composed plan of Maubeuge is based on the zoning and a wast provision of green areas respond to the concept of *cite jardin urbane*.
Maubeuge demonstrates that is it possible to go for innovative choices in planning of the historic land by establishing the institutional structures and making dialogue with the citizens.

Fig.36 pre-war plan of Maubeuge.

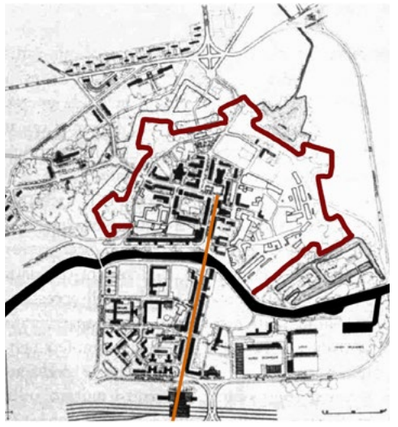


Fig.37 proposed reconstruction plan of Maubeuge by Lucrat.

07 LE HAVRE, FRANCE
1964 Auguste Perret

Located on the English Channel in Normandy, the city of Le Havre was subjected to severe bombings during the WWII. Its reconstruction is exceptional for its unity and integrity, a landmark of the integration of urban planning traditions and a pioneer implementation of modern development in architecture, technology and town planning.

Perret combines the reflections of the earlier urban fabric and the new ideas of town planning and construction techniques, in particular the use of prefabrication and modular construction grid.
Two pre-existing principle axis are kept, the new modular grid is contructed based on the fragments of ancient urban fabric and isolated buildings saved from destruction.
" the main remaining routes that create the basis of the axis and frame the general layout" (Le Havre Auguste Perret et La Reconstruction, Claire Etienne-Steiner 1999)
Chasing the goal of associating a new urbanity and monumentality ncessary for the port city, the team of Perret managed to adapt the town's urban fabric to the new needs without completely neglecting the hitorical component of the town development.
From the experience of Le Havre, the new concept is emerging, which is the enlightment on the organisation process of a city planning as a single process, cascade design - starting from urban criteria to the internal constructive and formal details.

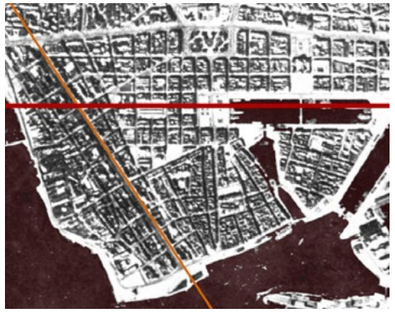


Fig.38 Le Havre before the destruction.

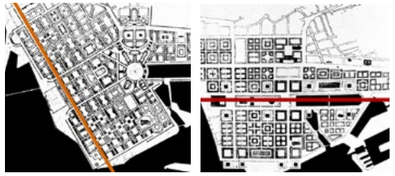


Fig.39 attempts of architects of Perret's team: Le Donne e Lagneau; J. limbert.

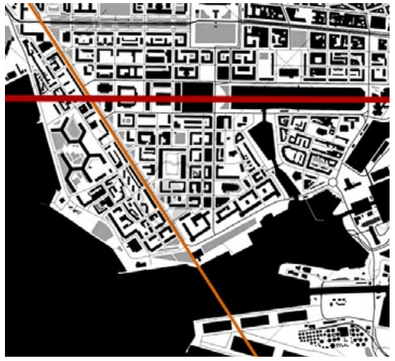


Fig.40 adopted plan by A. Perret.

08 SAINT-DIE, FRANCE
1945 Proposal by Le Corbusier

One of the Le Corbusier work was Saint-Die, that was never implemented, however it is useful to see the spectrum of approaches that the architect were trying on the experimentative reconstruction ground. St. Die is the town on the eastern part of France, close to Lion, that was bombed in 1944.

Starting from the *tabula rasa* situation, Le Corbusier proposes a radical reconstruction of the city, a plan based on the principles, that was discussed on the Athens Charter by the CIAM in 1933, based on zoning, the traffic separation, Work Housing Leisure Circulation. He envisioned a total break with the prewar configuration of Saint- Dié. The city centre is imagines as a sequence of *unite d'habitation* that condense the largest share of the residence and are arranged into the civic centres.

The most innovative part of Le Corbusier's plan for Saint-Dié was the city center, a huge pedestrian plaza that would occupy the land on the north bank of the Meurthe River, that reflects the issues discussed by CIAM, where they argued that large cities required a center to provide a forum for public gatherings as well as a focal point for buildings with cultural functions.

The Cathedral remains the only trace of the ancient structure, remains the point of reference for the composition of the centre.

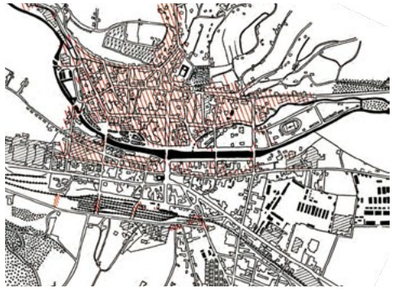


Fig.41 Plan of St.-Dié before 1944. The area shaded in orange was destroyed.

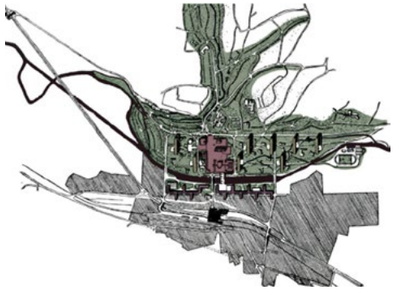


Fig.42 Urban plan for St.-Die, Le Corbusier (red-city centre, green-park, magenta-factories, yellow-unites, blue-water, grey-not destroyed).

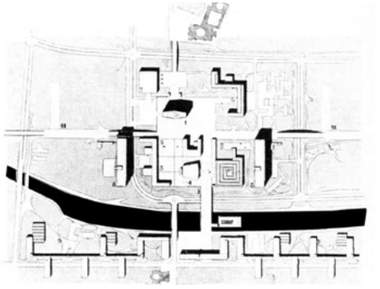


fig.43 Plan for city centre of St.-Dié, Le Corbusier.

3.2.2 Case Studies of Urban Reconstruction and New Construction in the Middle East

The knowledge of the culture and history of the context is a fundamental condition of any reconstruction process. The ability to analytically comprehense the physical environment, the principles that generated it, its physical structure etc. is a necessary tool for establishing an architectural intervention in the historic process.
Thus, as Western observers, we might not be fully capable of interpreting the Islamic cities and architectures by operating with solely the knowledge of the Western urban developments and recosntrcution phenomena. Thus, there is a certain interation between what we build and what we believe in, a man builds its own environment.21 Islam has its own cultural traditions that we are making an attempt to interpret.

“Tradition means the chain of revealed truth, wisdom and knowledge, which is transmitted and renewed generation by generation, thus linking various successive layers of temporal existence to the primordial reality which originated them.”22

Therefore, this chapter of the book is aimed at studying some cases that are of the Islamic context, the understanding of the physical environment in the cities of the Middle east. Accordingly, th practice of reconstructions and new constructions that were operated in those models characterise the architecture and the methodology used in this specific context.
The case studies discussed in this chapter represent both urban reconstruction and new constructions that we tend to read as reconstructions by grasping some aspects of the modality these cases constitute for, such as the treatment of typological elements, historic urban morphology as well as social and cultural aspects.
In order to see some process of urban reconstruction in the Middle East, we observe the projects participating in the competition of 1993 for the Souq of Beirut **_sheet 09 Beirut** and try to see how architects made an attempt to establish the relation between the modernity and tradition, between the progressive and the historical. The common feature of all the selected projects is the recuperation of the previous road structure in order to define the urban fabric of the new architecture. By preserving some constants, such as the road system and the traditional Beirut’s Souqs organisation, the architects managed to identify the strating point of their designs and to establish the relation between the traditional character of the place and the new elements, that are aimed to satisfy the contemporary needs. The tendency to preserve the original urban structure and the criticsl interpretation of the building typology with a different degree of extremes is noted in all of the selected proposals: while, for instance, Guido Canella’s group tries to hybridise the found typological invariants, Aldo Rossi’s group implicitly introduces some new signature elements, scuh as Ziggurat tower etc. The common observation here is that the typological character of the Beirut’s Souqs, which is the linear continous arrangement, is not criticlly altered but rather preseved, interpreted, or elevated.
“This theoretical approach allows a gradual reconstruction for pieces and buildings without forcing the city into a rigid and often purely speculative planning.”23

The next group of cases illustrates the new construction projects in Egypt and Algeria developed by an egyptian architect Hassan Fathy and a french architect Fernand Pouillon respectively. While studying Fathy’s works we aimed to undertand the language that Fathy managed to build, that of being in continuity with history and tradition and, at the same time, to create a new architecture with a strong identical character. The vernacular expressions that Fathy evolved to set the solution for the problems faced in the proposals for the villages **_sheet 10 New Gourna & _sheet 03 New Bariz** demonstrate the better ways of solving some urgent problems with architcture, whether its a housing problem, climatic prblem etc. In both projects we find the continuity with the past, the chain of detectable forms and its repetition, while, at the same time, we are able to identify the modern principples and transformations. Using the technique of composition, Fathy operates with the traditional elements by identifying it, selecting it for a particular use and, finally, justifying it. The buildings in Fathy’s works are the personal interpretation of his memories, that are strongly lonked to the context. In **_sheet 11 New Gourna** the hierarchical organisation of piblic spaces, the materials and forms used by Fathy reflect the Old Gournii village and the lifestyle of its inhabitants. At the same time, Fathy attempts to harmonize the social structure of the inhabitants by an approapriate architectural settings. The same can be said on**_sheet 12 New Bariz**, where the elements used by Fathy are like extracted from the original context, re-interpreted and assebled again for a new demand. So, the theory that we learn fin Hassan Fathy is that of the respect of regionalism. However, it does not mean the regional regionlism - for instance, Fathy is not afraid to mix the elements from Upper and Lower Egypt, - the purpose is to understand and interpret the context in which an architect is working and to respect what is essential for the context and the users. In fact, Fathy was saying:

“It is said that if you put anything into the landscape that does not repect the natural environment, you can be punished either by nature or by man.”24

Fernand Pouillon with his works in Algeria during the 19530s altered the vision towards architecture there - if before the algerian architecture was more characterised by so-called “prefecture” architecture, that is “exported” without adaptation from the west, Pouillon brought about the practices of regional architecture, lookimg for an

21 Bianca S. Urban Form in the Arab World, 1st ed., London, Thames and Hudson, 2000.

22 Bianca S. Urban Form in the Arab World, 1st ed., London, Thames and Hudson, 2000.

23 Giacomelli, Milva. 2008. Architetti italiani per la Siria e il Libano nel ventesimo secolo. Firenze: Maschietto Editore, pag. 114.

24 Rastorfer, D, The Man and His Work, In Hassan Fathy. Singapore: Concept Media,1985, p.28.

architecture for a specific country, that would be between the tradition and modernity. [25]
However, at the same time, Pouillon tries to establish a conversation with the historical past of the context. Pouillon was saying:
“Historical Algiers, Algiers of Casbah, it’s a city marked by the occupation of the Ottomans and, also, conserves the testimonies of arab spanish architecture.”26

So, having take into account, the districts of Diar es Saada and Diar el Mahccoul formed by the monumantal bastions, which is the sort of reminicent of the strong Turks, while inside, the patios, the squares and gardens are the allure to Spain with their ceramics, arcades, fountains etc.
The strong presence of two cultures - Ottoman and Islamic Spain - is read in all the designs. The “Islamic” qualities were expressed more explicit in the simple confort quarters, where the position of blocks and the small size of openings emphasise the fortification-like effect and where the public squares are more numerous.

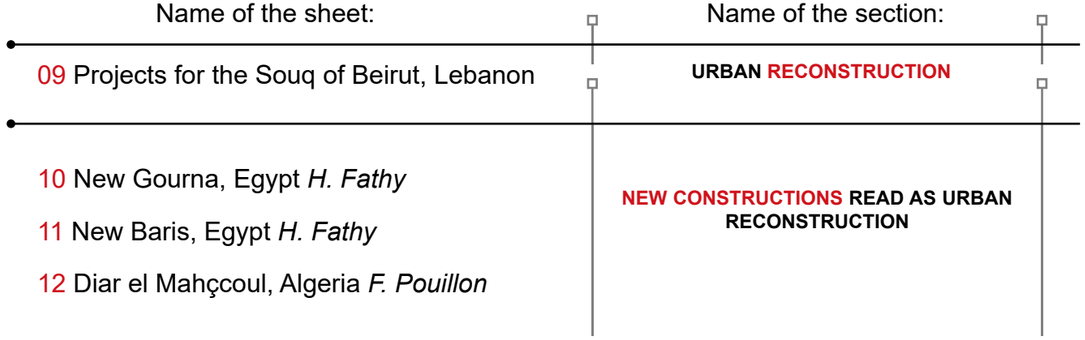
Thus, as mentioned before, the knowledge of the context is becoming an irreplaceble tool for intervene in a conscious way and comprehense the generative logics of the area. The knowledge of the context comes mainly from in-depth study of history, evolution of of forms and solutions, witnesses of habitual settlement methods. We noted that on the examples of Pouillon and Fathy, whose proposals were based on the study of regional and vernacular achitectural forms and then, interpreting it, each using thier own methodology.
From the knowledge of local social patterns, the typical rhythm of solids and voids of the urban fabric, the hierarchy of courtyards etcetera the new interpretation of those layouts shall occur, for instance, as we saw in the works of Fathy and the way he was transcribing the typical gourni dwellings to the new layout. Therefore, the process of reconstruction can adopt those ways of spatial use that are tend to re-create long-standing typological elements that have characterized the architecture of a given context and lead us to a new interpretation of them.

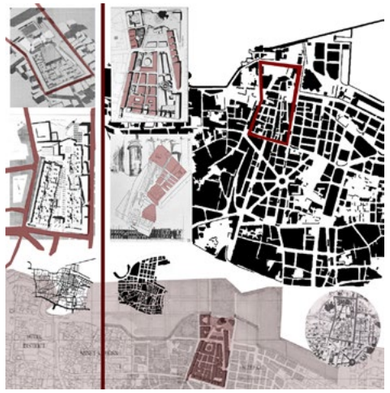
In our case, working in the city of Mosul, this could mean to accept the main compositional and generative principles that set the organization of spaces in Islamic architecture. The objective of the project stands in preserving and recognising the cultural identity of the community within the city, by means of some strategies - through the recovery of fragments of the urban fabric by taking into consideration the local specifics of spatial composition, organization and typologies and, ultimately, through the act of re-proposing them in a new, updated version.
In fact, the role of architecture itself is quite significant, because the construction, influences spaces and contexts within the city, however, at the same time it is influenced by the historical, cultural, social and architectural experiences that characterized the place in which it stands.

25 Bonillo, J, L, Fernand Pouillon, architecte mediterraneen, IMBERNON2001, p.62

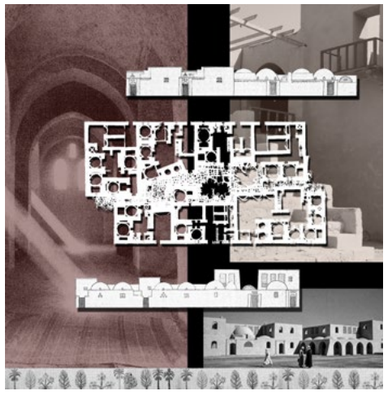
26 Dubor, B, F, Fernand Pouillon Architetto delle 200 colonne, Electa1986, p.48

LIST OF CASE STUDIES:



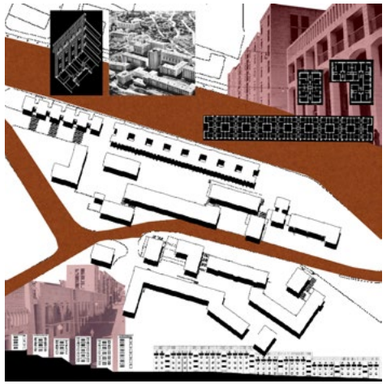


09 Projects for the Souq of Beirut, Lebanon



10 New Gourna, Egypt

11 New Baris, Egypt



12 Diar el Mahccoul, Algeria

Fig.44 Gallery of urban case studies in the Middle East.

LOCATION OF CASE STUDIES

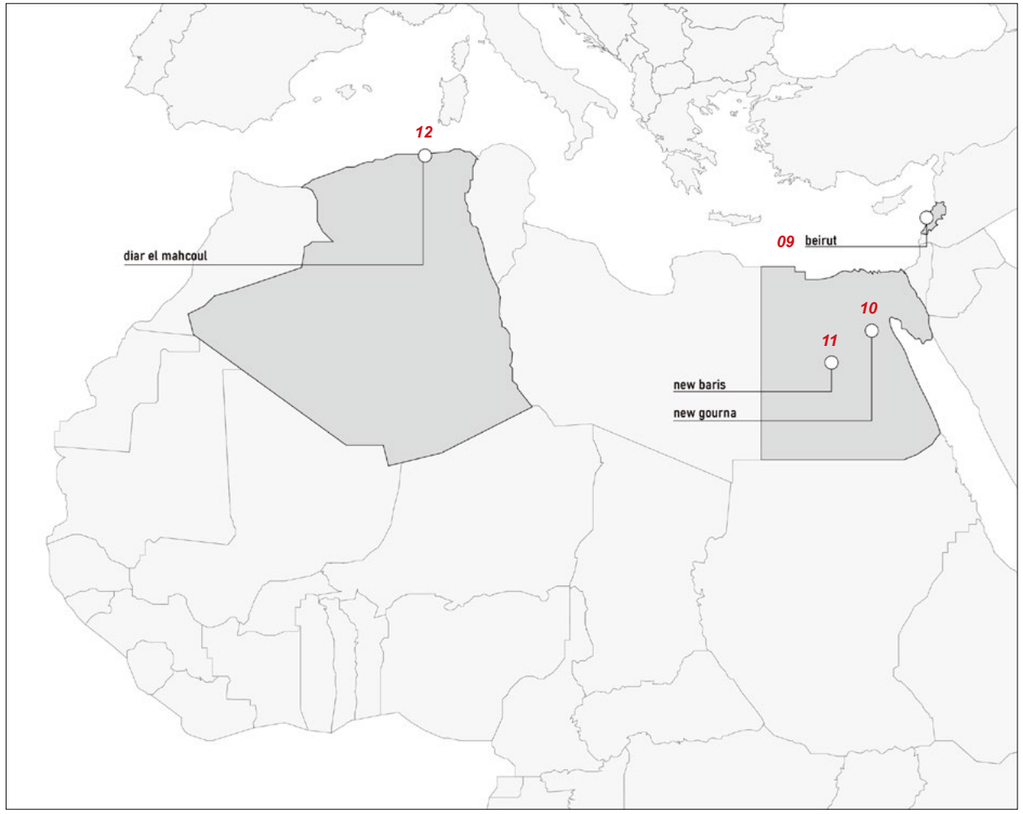


Fig.45 Map of locations of case studies of urban reconstruction and new construction in middle east

09 BEIRUT, LEBANON
1994 Competition Projects

Here the proposals for the Competition 1994 for the Souq of Beirut are discussed. The Souq stays as the witness of the first stages of the civil war of 1975-1991, it acts like a collective memory, so the competition called for the reinterpretation of the souq, that is able to reply to the contemporary needs without the loss of memory.

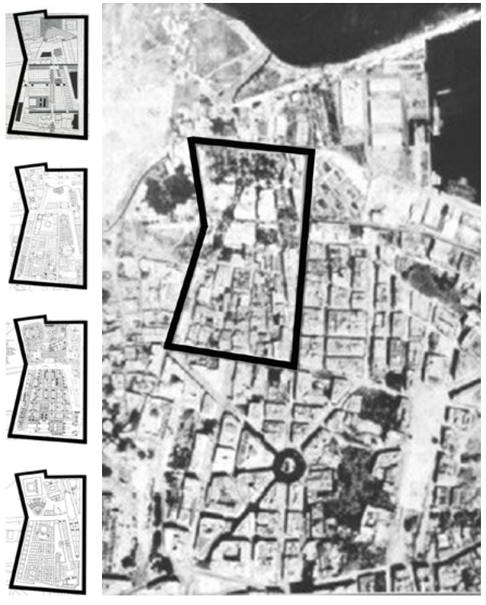


Fig.46 Project site for the competition & four discussed propo-

01_Polesello The project aims to emphasize the unity of the place and bring to light the monuments of the city. The city is derived of signs in a figurative and composite way. He re-proposes and invents these signs. The design follows to the principle of orthogonal geometric order that can exist independently of its uses, and the “accidental” elements that characterize the souk.

02_Rossi Rossi uses the typological approach, he restores the urban fabric with some modifications of the individual components. The old street pattern is preserved and a number of the new landmarks are added, such as ziggurat tower. He treats the existing urban patterns and typologies not like replicas but like the field for the re interpretation of them.

03_Semerani Semerani also proposes a collage with appearance of the new elements, especially in the north part, while the south seems to obey the rules of the fabric and the typical typology. The eastern side creates the impermeable wall that recreates the spirit of a souq like a porous, open patchwork.

04_Canella The same concept of a critical interpretation can be observed in the project by Guido Canella. The plan resumes the trend of the pre-existing structure that is obtained by the repetition of the original layouts of the souqs as an ordering element of the project. Within the building typologies that are coherent with the typical variability of Beirut, other different typologies are grafted, recombining spaces and forms that defined the characters of the mosque, madrasa, khan etc.

01_Polesello

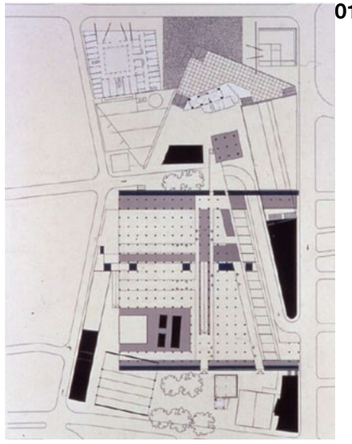


Fig.47 Gianluigi Polesello, plan for the reconstruction of Beirut’s Souk, 1993

02_Rossi

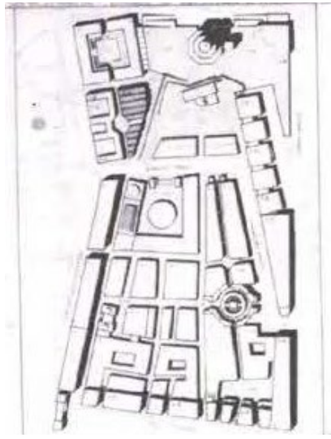


Fig.48 Aldo Rossi, masterplan for the reconstruction of Beirut’s Souk, 1993

03_Semerani

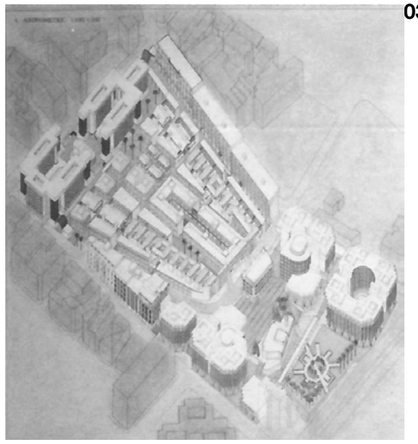


Fig.49 Luciano Semerani, physical model of the project for the reconstruction of Beirut’s Souk, 1993.

04_Canella

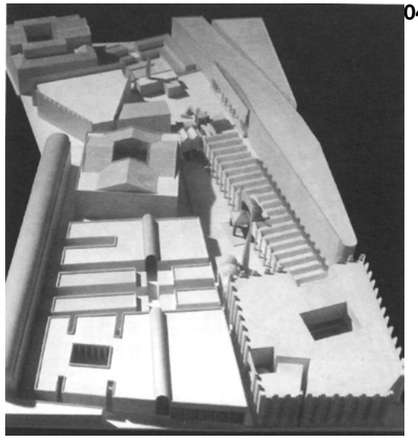


Fig.50 Guido Canella, Axonomety of the project for the reconstruction of Beirut’s Souk, 1993.

10 NEW GOURNA, EGYPT
1952 Hassan Fathy

The old Gourna was a community of five hamlets built across the West Luxor, the place of ancient cemetery of Thebes. In 1946 Fathy was engaged into the design for the New Gourna to relocate the population and prevent robbing the tombs. Initially planned for 900 families, only one fifth of the project is built.

The design represents the combination of socialist and utopian visions: the rural economy, the traditional family dynamics, the clan structure are recognized and put into a formula to transform the Gourii into a harmonized social structure devoted to folk art and surrounded by appropriate architectural settings. In the designed plan there is and architectural hierarchy that is read by the system of open spaces: the main route widens up and brings to the public square with the access to all the public facilities. The housing is planned as irregular allotments that enables the variation of housing plans and the angular network of streets. Village design is led through an ascending scale of spaces – starts from private courtyards to the semi-public neighborhood street, to the larger avenue, to the village square and then to the open fields of Nile Valley. This plan replicates the uplanned villages in the region.
The identity of the New Gourna is related to similar villages and settlements in the region. The planning intentions of Fathy were to use locally available materials and techniques, which imparts a vernacular character to the place's architecture .

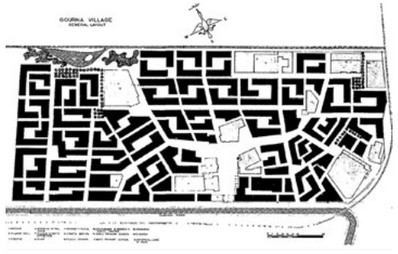


Fig.51 New Gourna,masterplan by H. Fathy, 1948.

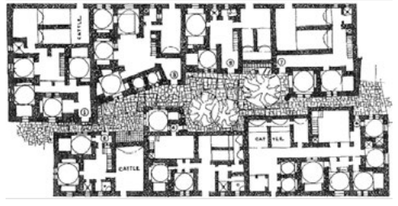


Fig.52 New Gourna, village street with broken vistas by H. Fathy, 1948.

Fig.53 New Gourna, the village outskirt.

New Constructions Read as Urban Reconstruction
projects by Hassan Fathy & Fernand Pouillon

11 NEW BARIS, EGYPT
1965 Hassan Fathy

In 1965 Fathy designs the plan for the residential neighbourhoods of New Baris village in Egypt. New Baris has the largest reservoir for water, therefore, the government's masterplan called for a central village and six satellite hamlets. Fathy was to design the central one that would serve for 250 families of farmers and as a commercial and social centre for the hamlets and the Old Baris.

In preparation for the design Fathy studied the towns on the region, where people, due to the climate conditions, were building their houses close to each other in order to shade the street. He adapted this technique. His neighborhood is a variation of a starting model, that is broken up and then rebuilt in preserving the inner rules. The basic model is compared with the place reality and modified, according to precise criteria that meet the intention of the project itself. Analogy is the tool that Fathy uses to assign a role to each architecture within the whole. The same process is taking place in the public building designs. The Souq is the epicenter of the project as well as other administrative and social buildings. These collective spaces are the result of a memory of shape and topological operations.
Also the materials, the constructive and technological decisions have an analogic relation with their starting models, and after their interpretation. New Baris is an experiment in a community-oriented design as well as aesthetic investigations of an architect.

Fig.54 New Baris, masterplan by H. Fathy, 1965.

Fig.55 Cells of the Souq.

Fig.56 General view of the Souq.

12 DIAR EL MAHCCOUL, ALGERIA
1956 Fernand Pouillon

Pouillon thus designed his housing projects with direct reference to cities. He understood the city as a network of public spaces, each public space bearing a different character that could not be explained by clear-cut typologies. A crucial issue for the architect was to establish the right relationship between buildings and public spaces as one defined the other
The “Islamic” qualities were expressed more strongly in the simple confort quarters, where the placement of blocks and the smallness of openings enhance the fortification-like effects and where the public squares—some planted with palm trees are more numerous.

The communal facilities, such as the markets and the church (now transformed into a mosque), bring a deliberate contrast to the architectural unity of the housing blocks. The market in the simple confort quarter is a rectangular space surrounded by a low brick arcade, formed by cross-vaulted units; its center is planted with palm trees. The market of the confort normal area uses the arch to mark its difference from the residential functions, but here the arch is less accentuated, less “vernacular”. The church, the former St.-Jean-Baptiste, was placed in the European section. A concrete structure defined by vertical thin elements, it was covered by four cross-vaults, open at the sides. Its bell tower referred to North African minarets with its square form and tripartite organization. No provisions were made for a mosque.

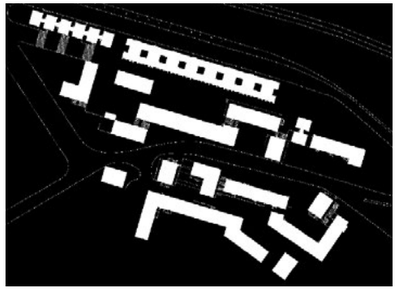


Fig.57 Diar El Mahccoul, masterplan.

Fig.58 the market and the upper square.

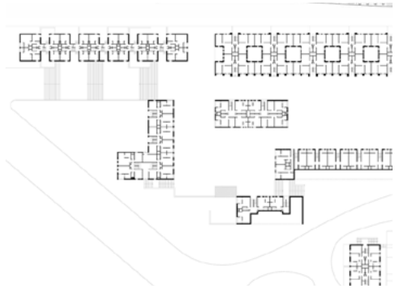


Fig.59 Diar El Mahccoul, drawings.

3.2.3 Case Studies of Architectural Reconstruction

In the architectural field, especially when the consideration of the design process has to take into account the existing legacy, It became essential to consider the concept of reconstruction which has shifted towards a critical reflection around some design processes involved in the relationship between memory and invention. Therefore, the historical awareness of architecture has always been a fundamental factor to influence architects carrying on the creative process of design. This chapter is aimed at discussing the variety of operative approaches on designing the pre-existing architectural heritage, furthermore, the possible applicable methodology. Considering the reconstruction as a process of transformation in continuity, it becomes necessary to identify the design proposal by taking into account the historical elements. As Ernesto Nathan Rogers pointed out:

“At times the present represents a continuity without marked divergences from the period which preceded it, and at times the present represents the normal evolution of time and is not marked by conflict.”.27

“At times the present represents a continuity without marked divergences from the period which preceded it, and at times the present represents the normal evolution of time and is not marked by conflict.”.

Moreover, before addressing the reconstruction projects it is essential to identify the meaning of the world reconstruction, whereby it means an action aimed at the rehabilitation of an architectural artefact in terms of both its physical and symbolic order. However, the intention of reconstruction is not in merely achieving the stylistic and aesthetic unity, but to respect the valid contribution of all the periods of time. In order to make sure that the restoration project does not misinterpret the historic facts stored in a building, a careful and analytical decision on every physical intervention has to be taken. However, it should be pointed out that recourse to history does not have a justifiable purpose in itself, but rather the objective of unravelling the city’s constituent processes and outlining the cultural environment of reference – as Ernesto Nathan Rogers states: “considering the environment means considering history” [28] specifically articulated in two directions: history as an instrument for verifying the search for consonance between the architectural project and its context, and as such the appropriateness of its outcome in terms of identity, and, on the other hand, as an operational and analytical tool for the context of origin. Therefore, the case studies presented below are categorised in three thematic sections according to the approaches towards the physical interventions, which are Intervention On Buildings; Building Expansion and New Constructions. Even though the driving force may vary, we are interested in the operative methodologies for these interventions and their ability of them to maintain and emphasize the historical value of their artefacts. The first group, Intervention On Buildings, suggests the case studies where the intervention takes place within the boundaries of the original historic structure - the original perimeter and physical frame is maintained while the new additions and constructions are integrated and occur on the existing structures. For example, we see a framed structure that has been constructed to fit within the original walls of the ruined castle but intact to it in the**_sheet 13 Koldighus Castle.** This choice proposes both a narrative meaning, a viewer has the possibility to easily perceive the different periods of history that the castle underwent and physical protection and maintenance of the ruined medieval walls of the castle. Therefore, the design sticks to having a light and flexible structure which provide higher convertibility and enables a spatial experience of the visitors, guiding them through the ruins and the history. As it was to be a museum, it is obvious that the most important exposition object here is the Koldighus Castle itself. A similar approach of exhibiting the buildings themselves and allowing them to narrate their story was taken by Herzog and De Meuron in his work for Caixa Forum illustrated in **_sheet 14 Caixa Forum.** Following the concept of “maintain the collective memory of the old power station toward the city” They place the new modern additions in a very delicate and smart manner, very time emphasising the incomplete, the undressed situation: the unfinished atrium is enhanced with new materials, lifted old brick facade that cuts out from the iconic building, as well as the walkway over the great vault of room, putting the past and the present in a strong dialogue. In this case, the historic building trace and contemporary forms interact together, while the old bricks dialogue with the new function hosted in the renovated building. In fact, history is a part of a continuous “process of transitions” throughout different states. To start with, we address the works of Giorgio Grassi for the Roman Theatre in Sagunto, shown in **_ sheet 15 Sagunto Theatre.** Here it was essential for the architect to understand the typology of the architectural object to be reconstructed. The impressiveness of Roman architecture is not that much in its decorative aspect, but constructive: It has clear rules regarding the dimension and composition of individual elements.[29] And Sagunto Theatre is not an exception. The methodology of Grassi can be described as a logical construction of architecture, where the type is studied and classified. The new addition is rectangular clear and straight-forward, but at the same time, contextually justified. The dialogue between old and new is maintained, where the new tries to learn from the old without mimicking it. For instance, observing the layout of the theatre shows us that symmetry plays a crucial role in Roman architecture: the U-shaped scene fronts, niches, staircases etcetera are positioned in a symmetrical layout.

27 Rogers, E. N. 1958. Esperienza dell’Architettura, 2nd ed., Milano: Skira, pag. 254.

28 Rogers, E. N. 1958. Esperienza dell’Architettura, 2nd ed., Milano: Skira, pag. 254 (修改)

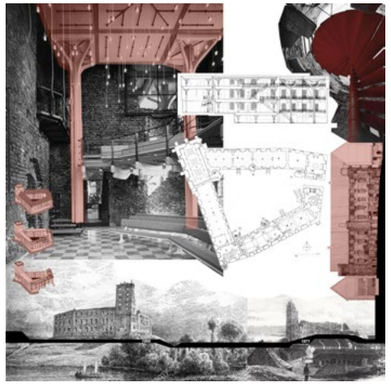
29 Vitruvius (1960), Ten books on architecture. New York: Dover publications, Inc.

So, the frequent use of symmetry here is not coincidently but based on the studies of an archetype. Another project by Grassi demonstrates that a new expansion to the building can transform the latter into a new typology, in the particular case of _ **sheet 16 Abbiategrasso Castle,** a courtyard typology, without losing the heritage value of the artefact. The completion of the castle with the new body overlooking the tree-lined square - seemed to be the most suitable not only to complete the existing building as an architectural term but also for the optimal functioning of the town hall offices. The historic essence of the castle is still preserved - the fronts of the old building can still be read in its entirety, even as a whole, from the courtyard through the dense spans that mark the new stone backdrop.

Finally, the last group of case studies entitled New Constructions illustrates the substitutive approach by constructing a new building on a historic plot. The priority that is taken by the following cases is not to know everything about the selected historical site, but to be able to sense which aspects of the history are important to maintain the meaningful continuity with the past. For instance, **_sheet 17 St. Anna Church** shows the project by Schwarz of restoring the destroyed neo-gothic church by the means of building a new one instead of working with the preservation of the existing, but to convey the atmosphere of the original one: the spirit, the volumetric composition that characterised gothic architecture is maintained. A further step in reinterpreting the past is achieved by Gardella for his project in Genoa. From_ **sheet 18 Faculty of Architecture of Genova** we see the plan of the only realised portion of the project, which is placed as a connecting link in a chain that was trimmed by the war. Gardella is convinced that the new city and the old are necessary for each other, that they should integrate and blend in such a way that the traces of the old city and the historical buildings are «exalted, that their qualities are highlighted»[30]
Proposal by Grassi that is also intended to act as the link between old and new is shown in_**sheet 19 Bastione di Porta Volta** where the new structure, situated between the historic city gates of Milan and the castle, interrupts the post-unitary gutting of the axis via Volta-viale Ceresio and then returns to indicate with its acute angle the shape of the fortification of the walls in the direction of the castle.
The ultimate case study, **_sheet 20 Kulhafa Mosque,** represents the project for the mosque in Baghdad, which is composed as an assembly of various parts all generated by its main guideline - the minaret. Space and volume, the subject matter of architecture, are matters of perception, not fact. 31
The project goes in corrspondence with the traditional values of islamic culture but constructs the narrative of the place - the height introduces a new scale missing in the four-part ensemble, brick patterns on the surface of the boundary wall echo the arch forms of the no longer there riwaqs, telling to the viewers that the new scale is no foreigner to the old.
As such, we see that the ways of operating with continuity with the past can be recognised in various architectural examples of both european and islamic contexts. In general, the selected projects aimed to emphasize the salvageable remains, involving them in a conceptual structure that sets the relations between the historical presence and the new intervention not in terms of opposition, but as composed unity, revealing the conglomeration of different times. in spite of different strategies and methodologies in physical treatmeant and construction techniques the notion remains the same - a conceptual gap between the existing and the new, whether in compositions or in structural consolidations, is emphasised, involving them in composing a unique entity.

30 Mugnai, F, La giusta distanza dalle cose. Due opere di Ignazio Gardella, Firenze Architettura2017

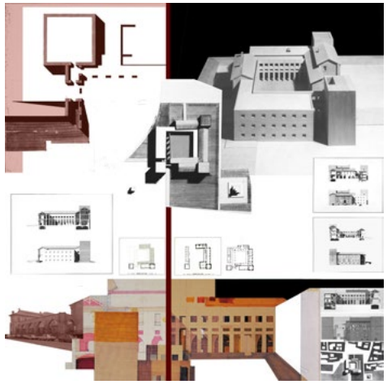
31 Kanan, M., 1990. Post-Islamic classicism : a visual essay on the architecture of Mohamed Makiya.. 1st ed. 26 Westbourne Grove ,London: Sagi Books, p.45.



13 Exner, Koldighus Castle

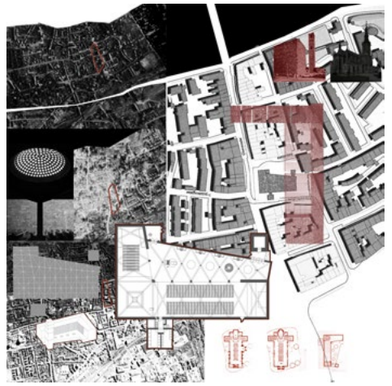
14 Herzog& De Meuron, Caixa forum

15 Grassi, Sagunto Theatre

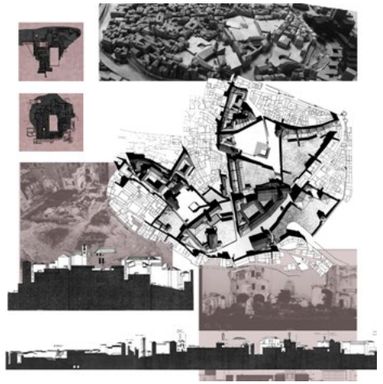


16 Grassi, Abbiategrasso Castle

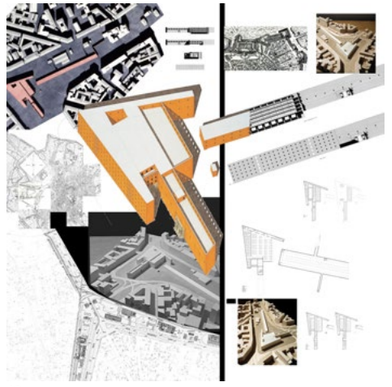
Fig.60 Gallery of architectural case studies.



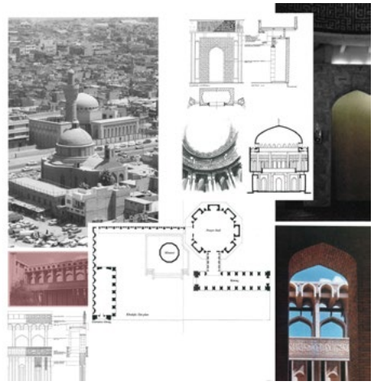
17 Schwarz, St Anna Church



18 Gardella, Faculty of Architecture of Genova



19 Grassi, Bastione di Porta Volta



20 Kulhafa Mosque

LIST OF CASE STUDIES:

Name of the sheet:	Name of the section:
13 Exner, Koldighus Castle 14 Bruno, Rivoli Castle	**INTERVENTION ON BUILDINGS**
15 Giorgio Grassi, Sagunto Theatre 16 Giorgio Grassi, Abbiategrasso Castle	**BUILDING EXPANSION**
17 Rudolf Schwarz, Saint Anna Church 18 Ignazio Gardella, Faculty of Architecture of Genova 19 Giorgio Grassi, Bastione di Porta Volta 20 Mohamed Makiya, Kulhafa Mosque	**NEW CONSTRUCTIONS**

Fig.61 Map of locations of case studies of architectural reconstruction.

13 KOLDIGHUS CASTLE, JUTLAND, DEMARK

1984 Johannes Exner

Sometimes the historical trace of the preservation and convertion of a building provide a strong identity of historic buildings. In this case, no matter during the Christian period or gothic period, Koldighus Castle all remained its specific trace during the historical changes. And during the conversion of Royal Danish Museum Strategies, architects aimed at a solution that makes conservation serving useful purpose, becoming possible by embedding or enclosing the remaining brickwork in a newer construction, a practical renewal of the original brickwork has been done but without any attempt to plaster the brickwork. While for the interior there is a free hand.

Thus the proposal is worked out by protecting the ruins with a simple structure supporting a roof and walls. This is approved by the building committee because the proposal maintains the ruins untouched. The exterior of the castle is being given a general form which corresponding to the time before the fire, whereas the ruins appear mostly in the interior.

As it was to be a museum, it was obvious that the most important exhibiting artefact was Koldinghus itself, and the different historical periods and events would have to be emphasized architecturally in the various parts of the building.

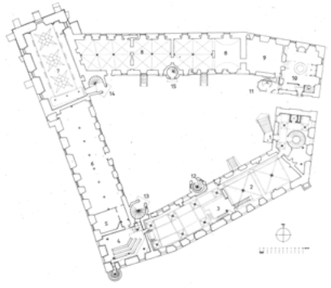


Fig.62 Ground floor plan.

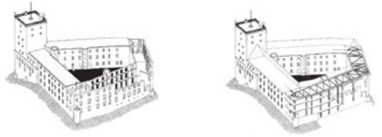


Fig.63 Koldinghus Castle1828 alzado.

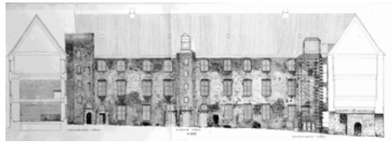


Fig.46 intervention on the existing structure.

Fig.65 View from interior seeing the material combination and untouching new structure.

14 CAIXA FORUM , MADRID, SPAIN

2001 Herzog & de Meuron

The CaixaForum Madrid building is at Mediodía electric power station, which has been renovated and extended. The principal architectural aim was to create a new public space. Therefore, the former gas station, close to the building, disappears, and the lower supporting wall is eliminated, thereby the building gives the impression of being floating on air. Herzog & de Meuron designed a largely new 7-story building, retaining only the brick facades of the existing building. In order to conceive and insert the new architectural components of the CaixaForum, the separation and removal of the base parts of the building no longer needed initiated. The removal of the base of the building left a covered plaza under the brick shell, which now appears to float above the street level. This sheltered space under the CaixaForum offers shade to visitors. This allowed to solve the problem of the narrowness of the street and the placement.

From the structure point of view, the extension part is entirely integrated with the existing building structure. The architect destruct the whole interior structure only remains the facade which they considered as the value of maintaining the collective memory of this former power station toward the city. The structural solution for this concept is very astonishing. Firstly they remove the bear wall and columns and use three core vertical structures to hold the load of the entire building, and use a concrete envelope to reinforce the existing facade.

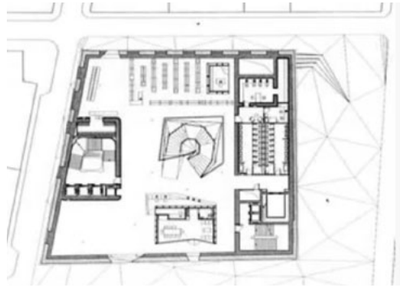


Fig 66 St. Malo before the destruction

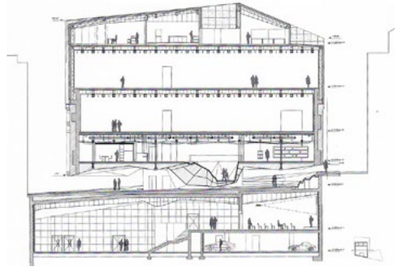


Fig 67 Section showing the circulation for additional volume

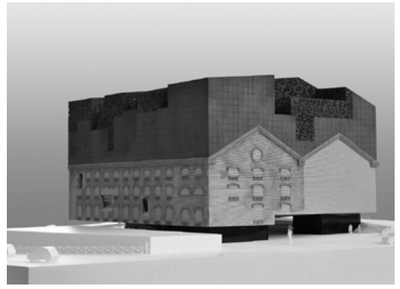


Fig 68 Relationship of existing building and intervention

15 SAGUNTO THEATRE, VALENCIA, SPAIN

1985 Giorgio Grassi

When architects are trying to consider the design approach to the historical building, there are several things need to be taken into account, for example, evaluate the preservation value, define weather is should be conserver or restored, also the limit in the physical damage which might got the value for change some part. In Sagunto theatre, to consolidate the remains; to demolish the additions from the twentieth century became Grassi's first concern. Attempting to enforce the verdict, however, caused a new problem: how to eliminate all the added elements without destroying the original historic fabric? the creators of the project argued three specific points to defend their work:
"1) That a large number of interventions had taken place at the monument since 1930. Grassi and Portaceli suggested that between 80% and 90% of the building was already reconstructed and 'false'. The estimate of 80–90% is probably exaggerated, while the perception of 'falseness' is perhaps accent tufted.because most of the original fabric was not visible behind the restorations.
2) The importance of the use of the building: the project intended to return the space to the citizens.
3) Typology: Grassi argued that Roman theatres were dissimilar to Greek theatres,and the image of Sagunto was confused because of its appearance as a Greek structure." According to Grassi it was 'un teatro alla greca [a Greek shape Theatre]'.

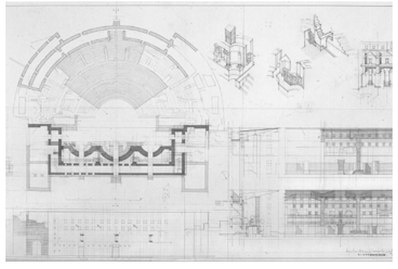


Fig.69 Sketch by Grassi.

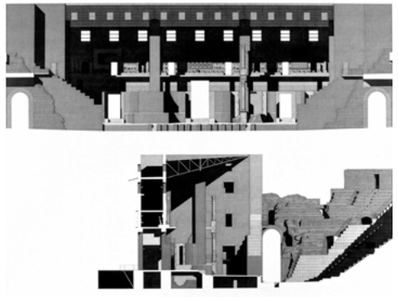


Fig.70 Section and Elevations.

Fig.71 View from theatre.

16 ABBIATEGRASSO CASTLE, MILAN, ITALY

1970 Giorgio Grassi

Beyond a stylistic analysis in the strict sense, with respect for example to the evidence we have of Visconti architecture in the Duchy of Milan, the monumental value of the castle of Abbiategrasso can be traced, first of all, to its civil significance and then its location with respect to the historic center of the city and the other monuments that it preserves. Lastly, the artistic value of the monument remains because, if on the one hand it is indisputable, on the other it cannot be denied that the markedly viscount character of the work is to be attributed in the first place to the very recent renovations, which mainly concern the large terracotta mullioned windows on the ground floor. But just as there were then valid reasons for such a decisive intervention,
The courtyard typology - and therefore the completion of it with the new body overlooking the tree-lined square - seemed to be the most suitable not only to complete the existing building architecturally, but also for the optimal functioning of the town hall offices and relations. that bind the different divisions in which it is organized. In fact, the arcade on the ground floor corresponds to an equal perimeter path covered on the upper floor; this is overlooked by the various divisions of the municipal offices, the secretarial rooms, the mayor, the councilors and the council etc.
It was possible to realize this double path by raising a second facade, in stone and double order, placed in front of the fronts of the old building.

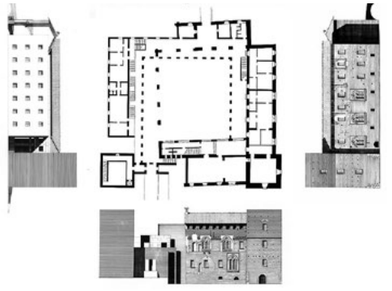


Fig.72 sections and plan.

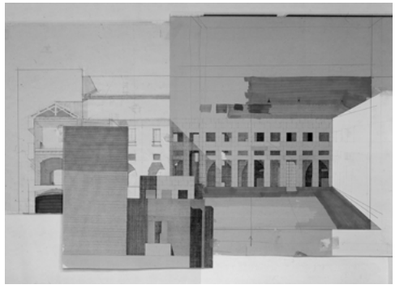


Fig.73 Sketch of composition idea.

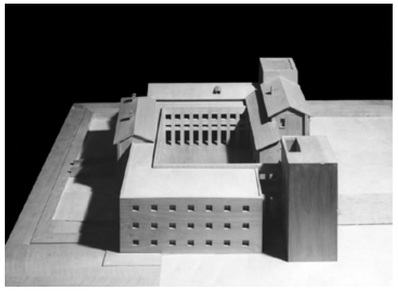


Fig.74 Model.

New Constructions

examples of St Anna Church , Faculty of Architecture of Genova, Bastione di Porta Volta, Kulhafa Mosque

17 ST. ANNA CHURCH, DUREN, GERMANY

1951 R. Schwarz

According to Maria Schwarz's, the conceptual task for Schwarz was not the building of a new church, 3 attempts:
So plan A was approximate reconstruction in concrete which attempted to create a continuity with the old building by planning a basilic-like space and a hall that were based on the body and style of the old church, B was a reduced and altered revision of A. Both of them the pillars were set on the old foundations, and the position and size of the chapel that had housed the relic of the head of St. Anna was copied exactly.
While the failure of conserve it as it was according to architect's words: it was no longer possible to reproduce the old building's harmonious proportions. The dimension of concrete pillars created a completely different picture. Plan C, Architect's subjective force.The consisted of walls became the triggering idea which lead to the place of a block-like ground plan which still somehow followiang the old plan's trace. Responding to the present: they didn't reconstruct the neo-Gothic, not only because the material means of doing so were not available, but also because they aware that they should treat the spirit of gothic in completely different way, architecturally. Also MS contrasted the use of stone there, and its static, archaic quality of construction and spatial effect, with the use of steel and concrete. Therefore these materials express forces in compression and tension, so that a different atmosphere is created.

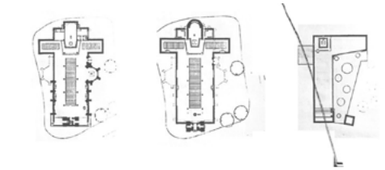


Fig.75 Three attempts.

Fig.76 The orientation of the church.

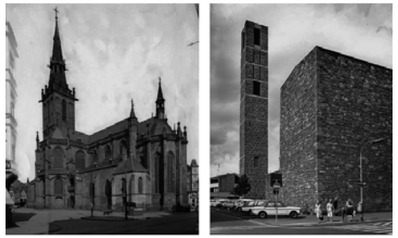


Fig.77 left: old church, right: new church.

Fig.78 Interior view seeing the cupola.

18 FACULTY OF ARCHITECTURE OF GENOVA, ITALY

1960s Ignazio Gardella

In the late Sixties Ignazio Gardella designed a university citadel in the ancient heart of Genoa which had been transfigured by the bombings, transporting to the urban scale the sympathetic dialogue between ancient and new that characterizes his work. This article explores the compositional procedures of the architect at work on the ancient city and traces the intimate connection between the archetype of the Palace of Knossos and the Genoese project. Among collapsed cupolas, fragments of porticos and bell towers standing out above the ruins of the most ancient center of Genoa, Ren Clment's film camera follows the black and white fresco, of the post-war period in the film Le mura di Malapaga (1949). In the movie, a precarious population build its everyday life by appropriating the luxury spaces which survived on the hill of Castello , opened by World War II bombings and overhanging the landscape of the 'carugi'. Twenty years later, Ignazio Gardella paid multiple visits to the same places in order to grasp the 'nature' of the place in the project, on the occasion of the drafting of the Detailed Urban Plan for San Donato and San Silvestro, with the double aim of providing the University of Genoa with new spaces and addressing the reconstruction of the ancient city centre. The photos by Gardella and his collaborators are operative instruments for the project.

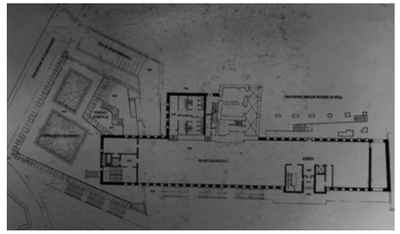


Fig.79 Pianta a quota +44.20.

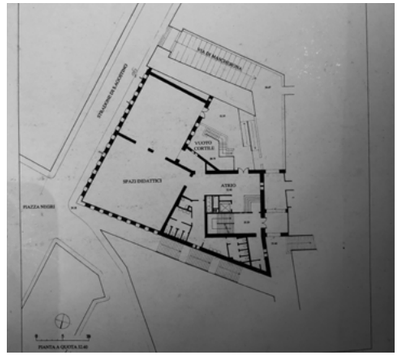


Fig.80 Pianta a quota +32.40.

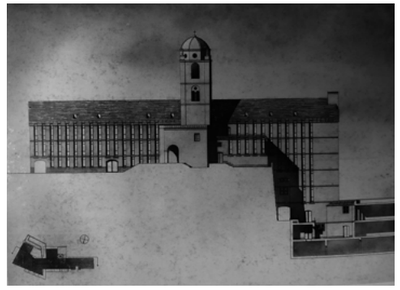


Fig.81 Prospetto Sud.

19 BASTIONE DI PORTA VOLTA, MILAN, ITALY

1984 Giorgio Grassi

This project starts from the hypothesis, already advanced by the public administration, of transferring the Sormani municipal library to the business center area.
As in the libraries for the Polytechnic and the Valencia Campus, it was desired that the institutional task emerged first of all in the construction of the architectural figure of the building; we wanted the library to be immediately recognizable to the visitor in its specific quality, is that the architecturally dominant element were the books themselves. Hence the choice of placing the book deposit at the center of the composition and at the center of this, at full height, the atrium, the card room! etc., that is, the main element of distribution of the different parts, so that both the destination of the building and the quantity / quality of what it is intended to keep was immediately perceptible. Here too, therefore, a building with a roughly central plan, developed around a full-height atrium, literally covered with books and surrounded, especially on the long sides, by the actual deposit. Except that, in this case, the planimetric conditioning imposed by the geometry of the old bulwark determined a particular adaptation of the scheme: an adaptation that also conforms to the particular conditions of use and management of a public library (the large reading room, the sections by subject, loan conditions, ancillary services In this preliminary project, the building is expected to have a mixed structure and perimeter walls of exposed brick.

Fig.82 Site plan.

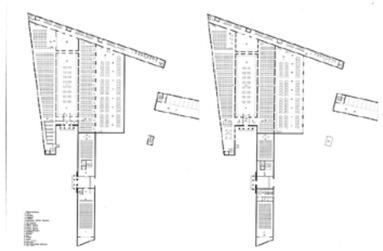


Fig.83
Ground floor plan.

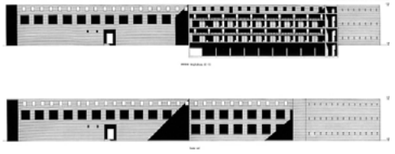


Fig.84
Section & Elevation.

20 KULHAFA MOSQUE, BAGHDAD, IRAQ

1960-63 Mohamed Makiya

Seen as a whole, the building is not one mass. It does not convey the feeling of some singular thing, welded together to give the impression of a gigantic powerful organism. The Khulafa Mosque is a composed assembly of parts. Parcelled out within the site, the composition always returns to its focus and generating principle, the minaret. New objects are placed and sized with reference to it. The site is too small for a dome to be ‘sat upon’ a massive rectangular building in the usual way. Therefore, the right-sized dome (in relation to the minaret) becomes a whole building unto itself.Symbol takes over from function. Now the dome can become larger than it would otherwise have been. The structural material is concrete, proudly expressed in the columns and canti levered ring beam supporting the dome. Recessing the ground-floor perimeter of the prayer hall makes the usable interior even smaller, but what counts is the contrast with the now expanding sky-like dome. Space and volume, the subject matter of architecture, are matters of perception, not fact. The dome is clad in yellow brick, matching that of the cupola of the minaret. When the Awqaf complained that the dome was covered in Christian crosses which looked like measles, the architect pointed out that he had simply copied the pattern from the 1,000-year-old cupola. Sixteen years later I lost a simila rargument over the Kuwait State Mosque to an official of the Ministry of Public Works. Times had changed: in 1963 the Awqaf had backed down on the dome.

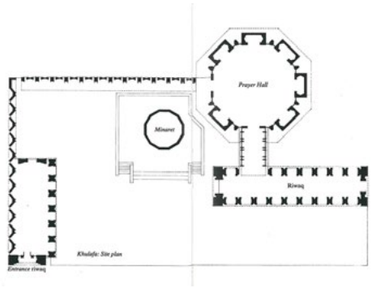


Fig.85Khulafa Mosque, site plan.

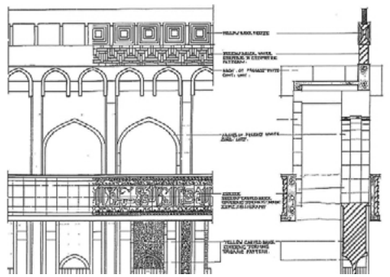


Fig.86 A symphony in brickwork.

Fig.87 Khulafa Mosque, 1963: Overlooking old Baghdad in the 1960s, with the Latin Church in the foreground.

RECONSTRUCTION TOOLS

4.1 Methodological approach.
4.2 Reading Mosul through typological features.
4.3 The Souk System.

Reconstruction for Souk Area of the Historical Center

4.1 Methodological approach
Analyzing the city urban elements and site selection.

The methodology of the research is extracted from the idea of rewriting which is the transformation process of complex urban fabrics with a historical identity that has been damaged by catastrophic events like civil war or a natural disaster, leading to the loss of their identity and definition. The rewriting process requires a clear understanding of the urban elements of the city which can be extracted from the historical understanding of the city and development of the city urban form. according to the historical and morphological analysis of Mosul, we can classify the urban elements into permanent elements and figurative and typological elements[1] (Fig 01).

Regarding the permanent elements, they are those elements which play an essential role in the morphological structure of the city and define the form of it (Fig 02). They are present along the historical events which the city has faced despite the subsequent overlapping of new infrastructures. As well they characterize the Islamic city and creates its identity. In Mosul its clear how the presence of Tigris River has affected the development of the city both the urban form level and the typological solutions. the river which has defied historically the axis of symmetry between Nineveh and Mosul. Stefano Bianca has described Tigris River as a city infrastructure resulting in the different positioning of the main city mosque and souk unlike to other Islamic cities. Beside the river, it is very clear the presence of the city walls and their footprints in identifying the city borders. The city wall creates a complex mechanism that gives encloser to the city and plays an important identity role. Streaming from the river bank of the city and the complex mechanism of the wall, the main city axes which connects the city fabric and guide the urban development of the city[1].

The figurative and typological analysis is related to the architecture product and the space with relation to the Islamic tradition (Fig 03). according to the Islamic tradition, qualitative needs control the proportions and space distribution. In other words, Islamic architecture gives more attention to the culture of form over the function and use of the space, which strengthens the spirituality of human life and enriches the spatial experience. analyzing the figurative elements in Mosul requires a deep understanding not only of the form generation process but also the local techniques of construction as a way for discovering the figurative potential of those techniques by experimentation aiming to overcome the formal traditional expression.the typological and constructive investigation to the qualities that characterize the architecture of Mosul city is required over time. It should include not only the main monumental structure but also the residential fabric which defines most of the city's urban form. The analysis should recognize the principles of both settlements where the

1 D Chizzoniti et al., "Urban and Architectural Identity of Mosul. An Analytical Background for City's Reconstruction", 2019.

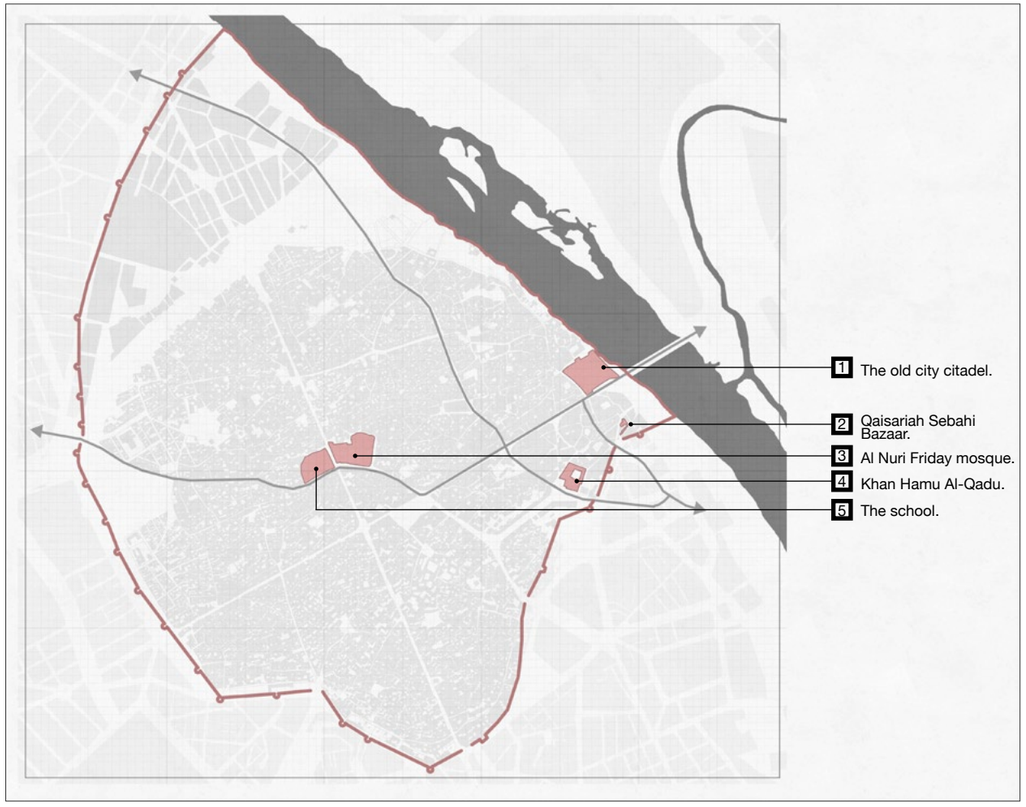


Fig.01 Map for the old Mosul city showing the combination between the permanent city element and typological figurative elements with the highlighted proposed sites.

monumental structures are organized within the urban space. As well as the different elements that characterize the typological figures of the residential fabric[1].

- The Selected Areas for reconstruction.

According to the analysis of the urban elements of the city in parallel with the destruction resulting from the war act, The possible intervention places have been selected in free areas connected with the main city axes and have a connection with the city urban elements. Bearing in mind the important collective strategic role of some activities which are priorities in the settlement program. accordingly, considering the socio-economic role in the revival process is very important besides the society's self-recognition to its essential activities and relations. the specified activities are part of the city identity and culture such as the commerce by the reconstruction of the main city market at the northeast of the city, education by constructing a multidenominational school, memory by the reactivating the role of the old city citadel, and constructing a memorial museum for preserving the city collective memory, and most importantly, the ritual activities by the reconstruction of Al-Nouri Mosque.

Debending on the historical, morphological, and urban elements analysis, the identified possible activities and areas for intervention and reconstruction within the urban fabric of the city of Mosul are raising questions related to its own character which can be classified as morphological, figurative, and architectural. Morphological as they are monumental structures that have been destructed during the war, and located along with the city main axes and connected with permeant city elements such as the Tigris River. Figurative as they are composing a strong urban figure within the dense urban fabric of the city, side by side with the residential fabric. As well they are enriching the urban experience by the hierarchy they create between the public collective space and the private one. Architectural as they are historical figures within the urban fabric of the city. they have an autonomous and independent architectural character which creates their uniqueness[1].

After the identification of possible sites for the rewriting of the old city of Mosul, here comes the role of the architectural object within those selected locations. It is important to identify the role of the architectural project at those sites as a tool for promoting the urban identity and to be recognizable through the urban fabric of the city of Mosul. The architectural object within the historical context acts as a piece of art that is linked to memory, affected by the iconic nature of its definition, regardless of its individual figurative options. Accordingly, this critical attitude of the architectural objects often gives inspiration for new forms and contents which are derived from the symbolic and iconic value of the cultural context where it would be realized at.

The city of Mosul has different groups with different religions and ideologies which creates social,

Fig.02 Mosul permanent city elements showing Tigris river, the city wall, and historical city axes.

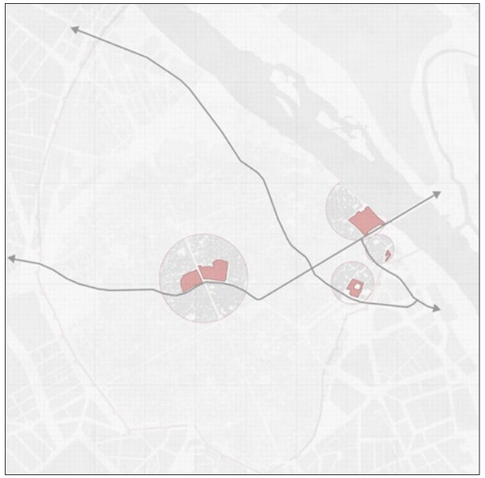


Fig.03 Mosul figurative structure around the selected sites.

economic, and cultural diversity and contributed to the formation of that unique community. Accordingly, the role of the architecture project is very delicate as it could operate as a tool for strengthening these differences, or on the other hand, it could create a certain homogeneity between those diverse communities. So, the purpose of the thesis is to define and prove case by case, how the architectural object could work as a tool of advanced city management. As well this management strategy, even by working on small structures in secondary areas, is capable of creating territorial and cultural homologation by combining new behavioral models and figurative innovation extracted from the originality of the place. Considering the practice of composition as the main conceptual approach for composing the architectural actors, starting from the project site until reaching the characteristics of the architectural space where the sensitive experiences would take place. Reaching the aim of the research which is preserving and recognizing the cultural identity of the city, starting from the reconstruction of memory places by producing structures that work as elements of knowledge, the small fragments of the city's urban fabric at the center or on the borders, which works as a storage for the collective memory of the city[1].

4.2 Reading Mosul through typological features. The Monuments and City typological models.

Because of its location and history, Mosul is a very diverse city that gathers numerous communities such as Arabs, Assyrians, Kurds, Armenians, Turkmens, Kawliya, Yazidis, Shabakis, Mandaeans, and Circassians. Many religions coexist together, the mains are Sunni Islam, Salafi movement, Christianity, Shia Islam, Sufism, Yazidism, Shabakism, Yarsanism and Mandaeism.

This variety leads to the multiplicity of heritages and monuments dedicated to different ethnicities.

«Moreover, Mosul, and particularly its Old City, is the physical representation of the cultural diversity that characterized Iraq.»[2]

- A religious diversity.

As previously mentionned, Mosul brings together many different religions that have built their own culture buildings around the old city. The most widespread monuments are the mosques, followed by the churches and finally the synagogues (Fig 05).

«The Old City of Mosul was a physical reflection of this diversity due to its abundant shrines dedicated to various religious figures, some of whom are revered by the three monotheistic religions, as well as its numerous, churches, mosques, madrassas and cemeteries.»[2]
This abondance of monuments is also a reflect of the cohabitation History between the religions and a testimony of the importance and the richness of Mosul.

«During the reigns of the Mongol and Turkic dynasties, as well as the early Ottoman period, Mosul was further improved by the building of numerous mosques and madrassas, especially in the southern part of the town. Later on, shrines were built for the prophets al-Khidr, Seth and Daniel. The existence of the graves of five Muslim prophets in Mosul gave the town the honorable title of ‘the town of prophets’.»[2]

2 Old City of Mosul, August 2018, UNESCO

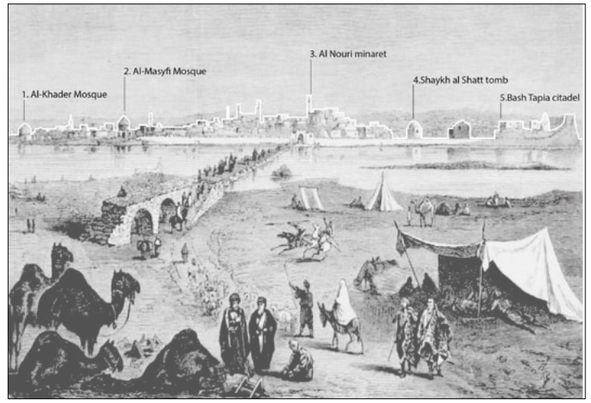


Fig.04 Skyline of Mosul.

Fig.05 Plan of Religious building in the historical center of Mosul.

- The City Wall.

«In subsequent centuries, the old city, surrounded by a wall until the 19th century, retained the medieval architecture and layout of its historic nucleus to which Ottoman buildings were added.»[2] (Fig 06).

This wall is nowadays partially destroyed and only visible in some parts of the city. Its influence on the urban development remains impactful.

- The Citadel and doors.

«Additionally, Mosul still has the remains of the so-called Citadel of Bashtabia that is also thought to have been built sometime during the 12 century AD, though various sources attribute earlier possible dates to the site. Bashtabia is known to have played an important role in the various invasions and sieges of Mosul.»[2]

The doors also played an important role in the economical and social life of the city, they were key location for shops and commercial trades.

Fig.06 Map of the monuments of the old city of Mosul .

- The Mosque.

The mosque or masdjid in arabic, which means «place of prosternation», is a pillar of the urban organisation of the Islamic cities. Their importance both in religious and urban aspect is underlined by their central position in the city.

It is the convergent point between the religious, educational, social and commercial network of the city. Historically, the commercial neighborhood, the souq, and buildings dedicated to the learning of the Quran were built around the mosques.

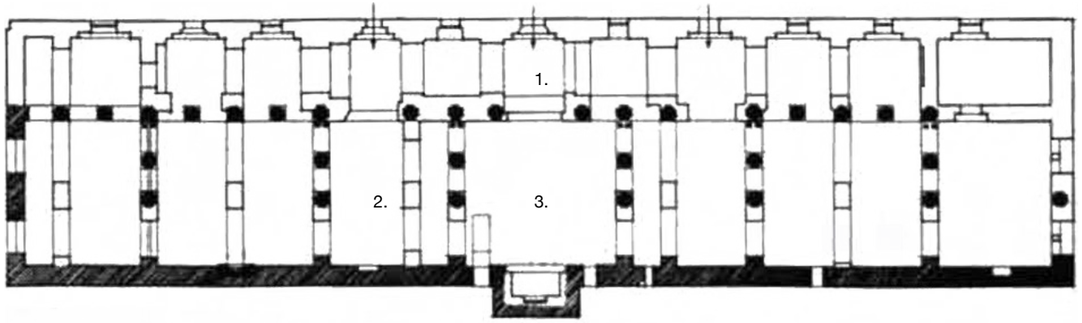
The main mosque of the city also plays a specifique role in the religious system of the Islam. Those mosques pace the life of the inhabitants. Also called «friday mosques» they are hosting the friday collective prayer at noon, the most important of the week,mandatory for men. They also have a social and political scope in the life of the comunities as a civic assembly, following the friday prayer where the different political leaders meet.

- The Architecture Features.

The mosque is not a sacred building in itself and does not contain any sacred object. Its religious importance is given by the rituals organised between its walls. In facts, there are not a lot of architectural requirements in the construction of a mosque except for a clear demarcation of the interior space, no need for an enclosure, and a frontal element marking the direction of Mecca.
Some internal elements are traditionnal of a mosque. The main space is the prayer hall where the muslims meet on fridays. The prayer hall contains elements such as the mihrab, or minbar, that have an important role in the rituals. The mihrab, is a niche set into the wall facing Mecca. It is often decorated and has a central location in the mosque. The pulpit called minbar is the place where the imàm does the friday sermons. It is generally placed near the mihrab in a way that the prayers can face Mecca and the minbar a the same time.

In mosques men and women are separated. If the men use the main prayer hall, women have to pray in the makhphil. This dedicated space for woman is usually seperated by stairs or a fence from the main prayer hall and has a different entrance.

Some external features can also be identified in most of the mosques such as the minaret and the dome that usally cover the center of the prayer hall. The minaret is a slender element that can be located in one of the corner of the mosque or beside. It is from that tower that the muezzin gives the call for the prayer.



1. Prayer hall
2. Minbar
3. Mihrab

Fig.07 plan of the Prayer Hall in Al Nouri Mosque Complex at the beginning of the 20th century, 1920.

- Al-Nuri Mosque.

The Mosul main mosque called Al-Nuri is located in the historical center of the city and works as a landmark for the inhabitants. Al-Nuri Mosque was the symbolic focus of the city and the most significant historical building within the historical Mosul. It was built in 1172 and was founded by atabeg ruler Nur al-Din Mahmud Zengi. That mosque is very recognizable by its brick minaret which dominates the city from its 45 meters[3].

By analyzing the urban transformation of the city, it will be clear how the mosque complex has affected the layout of the streets. as before the interventions carried out to the structure of the historical city in the 20th century, the layout of the streets was characterized by a system of streets moving from the city gates and directing to the mosque complex. Along that system of streets, we can find the most religious monuments distributed. those monuments in addition to the minaret of the mosque “Al Hadba”, were working as urban symbols and orientation points guiding the visitors inside the city[3] (Fig 10).

According to the historical studies, it appears that the mosque was originally surrounded by the souq. The main building that hosts the prayer hall follows a rectangular plan and is divided by a series of arches and columns that pace the space. In the northern part a big courtyard is

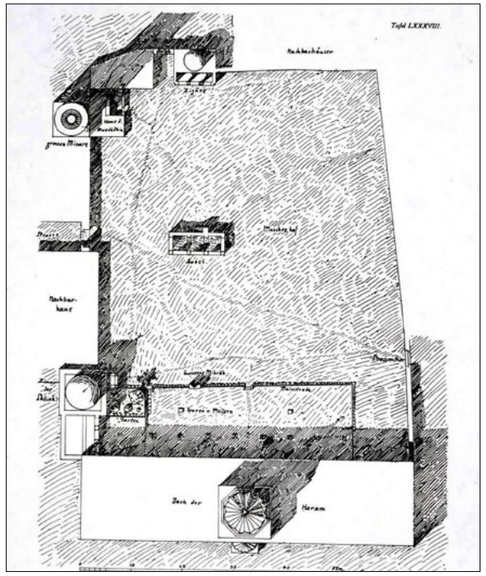


Fig.08 Layout plan of Al Nouri Mosque Complex and layout plan of the Prayer Hall at the beginning of the 20th century, 1920.

bordered by a madrasa (Fig 08). The mosque has been modified and rebuilt through the History. In 1942 the mosque was dementeled by the Iraqi government to rebuild it based on another plan (Fig 04). The minaret was also reinforced after the bombing of Mosul during the war betwenn Iran and Iraq in the eighties. The most recent episode is the destruction of the mosque by ISIL few weeks

3 K Nováček et al., Mosul after Islamic State, 2021.

Fig.09 Mosque of al-Nuri. General view of the mosque from the northwest by Petr Justa, 2012.

before the liberation of the city. Only the central dome and few arches are still standing today. In 2020, the UNESCO organised a competition to rebuild the mosque.

The interor of the mosque characcterized by a prayer hall with a wide peristyle consists of two aisles with similar dimensions intersected with seven to nine bays of uneven width placed symmetrically. The bay in front of the mihrab was elevated over the rest of the hall as the case in most of the historical mosques for giving importance to the mihrab space. The mihrab bay as we can find also in most of the historical mosques to be covered with a monumental structure like domes as the case in Al-Nuri Mosque. The mosque is accessible from the north through a pointed-arched portico covering an axial corridor with a half-width of the prayer bay, which leads to a vertical circulation for accessing the minarets and the roof of the mosque[3] (Fig 09).

In the prayer house of Al-Nuri Mosque there are 40 columns, which form 4 rows parallel to the qibla

Fig.10 The Mosque of al -Nuri with the al -Hadbā' Minaret, from the South-East, in its original state, i.e. before its demolition in 1942.

wall. These columns are of two types: columns with huge octagonal bodies and columns with cylindrical bodies. As for crowns, they are of two types as well: The first type: It is the crowns that adorn the octagonal columns, and its shape is in the form of a cube with a square plan, consisting of three parts that rise above each other and muqarnas are stationed in each corner of the crown, in order to reconcile the square plan of the crown with the octagonal projection of the column body. The second type of crown is the one above the cylindrical columns, and these crowns resemble the shape of a harp[4] (Fig 11).

- The Madrasa.

Founded around the fifth century the madrasas were generally built near a mosque. The madrasa is a building combining a social and religious and educationnal purposes. This religious schools dedicated to transmit the theology of Islam were also teaching the islamic laws, history and sciences. Traditionally this building was composed of study rooms, prayer halls and dormitories as student were generaly living in the madrasas.

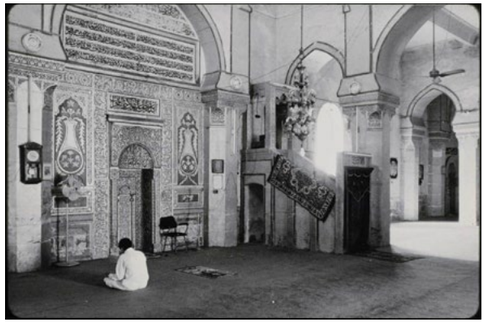


Fig.11 The prayer hall of Al-Nuri mosque, after reconstruction in by General Authority of Antiquities, 1944.

4 A Rashid & M Hussein, “The architecture and decoration of Al-Nuri Mosque in Mosul”, 2017.

- The Hammam in the Ottoman culture.

The Islamic Bathhouses or the hammams, also commonly known as the Turkish baths. It's considered one of the most key facilities in the Islamic urban form. The idea of the Hamman has been evolved from Roman and Byzantine public paths when the middle east Byzantine territories had been occupied by the Umayyad dynasty between 661 and 750 AD. The location of the Hamman with the city fabric was affected by several factors such as the location of urban water distribution networks, springs, and existing wells, another important factor is the proximity of mosques within reasonable walking distance. The size and scale of the hammam also vary according to its location weather within a residential context so it would be relatively small or surrounded by other facilities like the Friday Mosque, commercial and craft center (Souk), and school so it would be bigger in scale[5].

Hammams besides its original functions it was the locus of social interaction for centuries in the Islamic city, anchoring the collective memories for many generations and supporting a rich heritage. Usually, the hammams are to be found as a single structure working for both men and women with different timing for each. The presence of the hammam in the city form tends to be more hidden and discreet but, in some cases, it can be decorated with some ornaments that distinguish

5 K Creswell, A short account of early Muslim architecture,1958.

Fig.12 Hammam in Mosul City northern Iraq, 2017.

it from the surroundings. The hammam building is more distinguishable from the roof level through the unique architectural composition of pierced domes and vaults[6] (Fig 13).

The typical organization of the hammam is composed of three sections: Firstly, the entrance which is usually to be found discreet in the street for giving the privacy, leading to a reception which is an intermediate space that works as a buffer zone for isolating the outside from the inside. The reception space is connected to the changing hall which is an open space defined by raised platforms and covered in most cases by a large masonry

6 M Sibley & I Jackson, "The architecture of Islamic public baths of North Africa and the Middle East: an analysis of their internal spatial configurations", 2012.

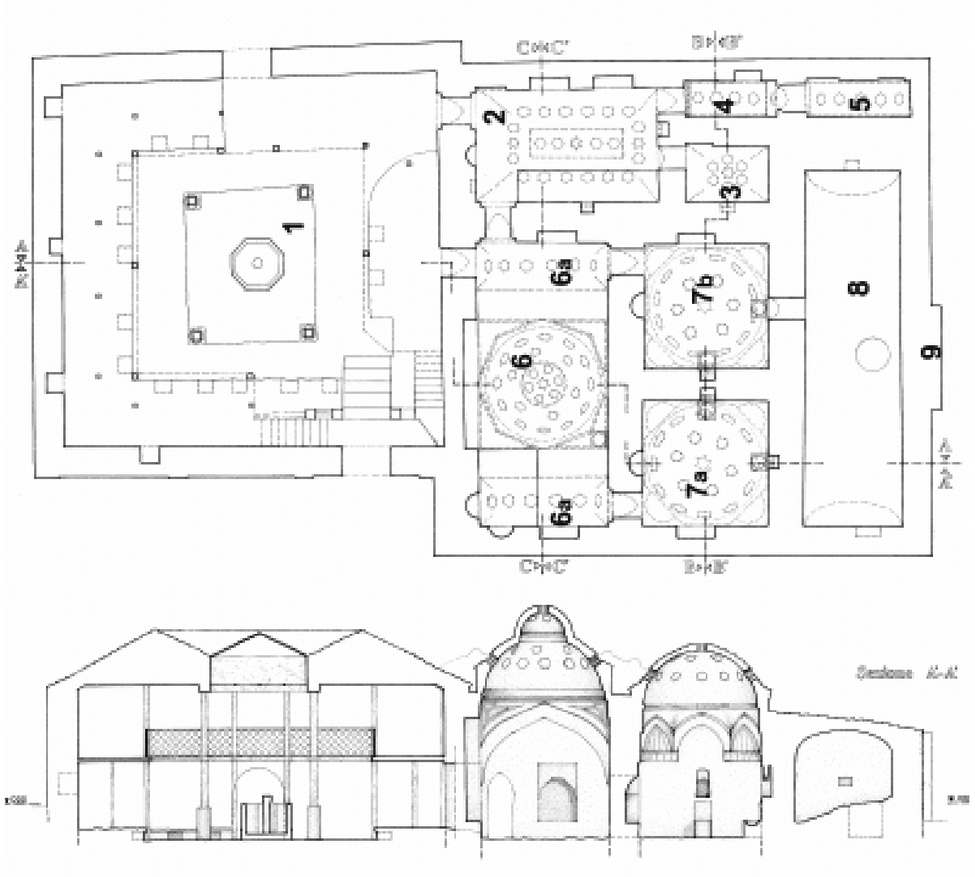


Fig.13 The Turkish Baths in Elbasan: Architecture, Geometry and Wellbeing Roberto B.F. Castiglia, Marco Giorgio, Bevilacqua.

dome. Almost half of the hammam total floor area is dedicate to the changing room, reflecting its important role as a gathering space for social interaction. The second section consists of a group of bathing spaces with different temperatures. The third section is usually dedicated to the furnace area which is responsible for controlling the temperature of the hammam. The circulation inside the hammam is marked by a sequence of rituals that happen in a succession of bathing spaces varying in their intensity of humidity, heat, and natural light.

The organization of the baths inside the hammam, we can find two types. The first one is the central organization where the spaces are distributed around a central room usually octagonal in shape, with a diagonal extension leading to sub rooms. the second organization is linear and sequential, where the spaces are distributed along an axis. the type of organization for the hammam and as well the overall composition of the building is controlled by the climatic region where the hammam is located, as well as the type of heating system adopted[6].

The hammam is a typical element of the ottoman culture. During the Ottoman period, they were spread around the empire. Nowadays, the remains of hammams can be found in Middle East and North african countries. The hammam is the complex hosting various activities completing the bath. Their architecture changed during the history depending on the cultural environment. The hamman was inspired by the Roman thermes. The oldest known hammam was found in Bassorah in

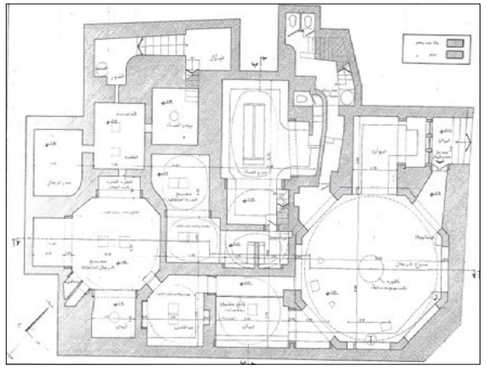


Fig.14 Plan of Al-Ataren bath in Bab Al-Saraya Souk, 1982.

the South of Iraq.
During the ottoman empire the hammams have separated sections for men and women. They became very popular in the Ottoman cities and remain as one of the traditionnal elements of the Islamic cities. If the first hammams were only composed of the three rooms and baths at different temperatures, they evolved in larger structures. In the second part of the Ottoman period, it was common to find beauty treatments in hammams such as massage, exfoliation, hair remova, henna and even dentists[7].

7 R Castiglia & M Bevilacqua, “The Turkish Baths in Elbasan: Architecture, Geometry and Wel-lbeing”, 2008.

- The Architecture Of The Moslawi Houses.

In the historical Islamic cities, residential blocks occupied the largest surface. Those blocks were composed by an agglomeration of housing units built next to each other. The houses, built wall to wall, created wide introverted urban elements that composed the urban fabric. The residential blocks were extremely dense and inward-oriented. The houses were accessible though a network of narrow streets and dead ends created by the residual space available between each unit (Fig 15). The morphology of the residential blocks and the tortuous access ensured a preservation of the privacy[8].

The residential units are introverted and protected from the exterior. The houses are composed by a central courtyard toward which all the rooms are oriented. This courtyard brings light and air inside the houses. The external walls are blind and ensure the division between each unit. Those houses are usualy composed of two or three floors with an accesible roof.

Similar to the historical Islamic cities, the city of Mosul was built densely covered with residential blocks without vegetation and green areas unless some private gardens inside the courtyard of the houses. The city of Mosul was inhabited by different religious and ethnic groups such as the Arabs, Kurds, Assyrians, Turkoman, and

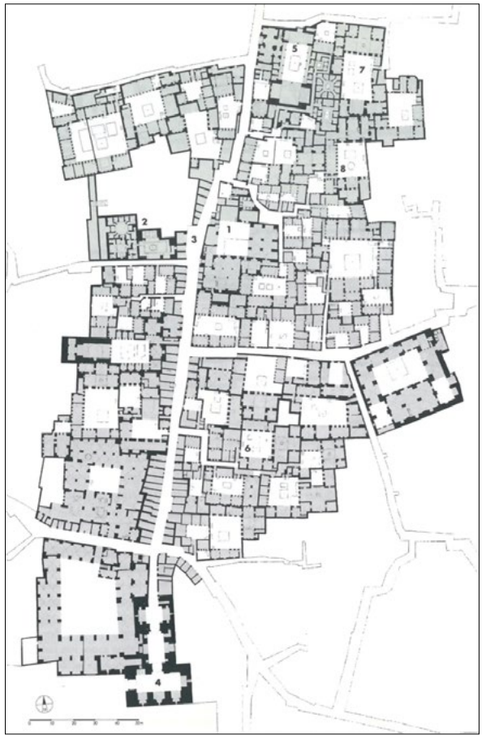


Fig.15 Urban form in the arab world past and present.

8 S Bianca, Urban form in the Arab world, 2000.

Jews. They were living together in a residential quarter called mahala as the city was divided. Each mahala is divided into units which are the individual houses and generally characterized by introverted units with little and small openings to the outside which can be found mainly on the ground floor and above the eye level and in the upper floors there are the traditional Shanasheels which are a form of a closed balcony with small openings to the outside[9] (Fig 16).

The Moslawi houses are different in sizes but usually quite modest between 150 and 200 square meters and two to four-level Height, with one courtyard and in some cases, we can find houses with several courtyards. The traditional Moslawi courtyard houses are quite diverse in their shapes, dimensions, and orientation, being the result of the organic transformation and development of the city. Most of the Moslawi houses were built from burnt mudbrick and in some cases, river stones are used with a mix of gypsum and clay mortar. regarding the ceiling, it shows a great variety in both type and material. vaults were the most popular ceiling, made from burnt mudbricks. Also, segmental, Barrel, and semi-circular vaults were used more in the modest houses while in the houses of the notables we can find the squinch and domical vaults. Other than that, we can find the flat ceiling made of paneled wood or compacted earth and gypsum supported by wooden beams. The writer Percy Kemp has described Mosul Houses as “Houses were low

9 UNESCO organization, Reconstruction & Rehabilitation of Al Nouri Complex, 2021.

Fig.16 Street view from Mosul showing the facades of Moslawi houses. image by Tom Jenkins Bradley, 1982.

and had no windows on to the street; most were built of burnt mudbrick, while door frames and columns were made of gypsum and of alabaster.”[9]

The traditional Moslawi house is composed of different components which integrate for creating a system that ensures specific aspects such as privacy, environmental comfort, flexibility, and maximum social interaction. Starting from the street level comes the door which is an indicator for the identity of the residence and the social standing. The gate of the house leads to the Mejaz which is a transitional space that separates the semi-public and the private space inside the house, thus the family’s life is protected from the eye of the outsider. sometimes it contains seats made of stone. The Mejaz idea in mansions is more complicated, it is a series of spaces: informal reception, bathroom, and guards’ room.

Fig.17 A rebuilt old Mosul house after its destruction showing the house court and the typical dicorative elements.image by Saad Haadi, June 2021.

Only in a few cases, we can find the gate of the house open directly to the courtyard, in such cases we can find less private spaces on the side of the courtyard like Iwan or Riwaq.
After the Majaz, comes the courtyard the main space of the house which leads to the other functions and spaces of the building (Fig 17). Sirdab is one of those spaces, it is the basement of the house used for storing goods. Usually extending under the courtyard and includes skylights. Another usable space that can be found between the ground and the first floor is called Takthabosh. It is dedicated to elderly people and opens toward the courtyard with a wooden floor. The roof of the building is called Satah, it is an accessible space with high walls

often with the same floor height and it is being used during summertime as a sleeping space because of the harsh weather during summer. Iwan is one of the most architectural spaces that distinguishes Islamic architecture. Inside the Moslawi house, we can find it as a vaulted room open from one side towards the courtyard. It works as a transitional space as we find doors and windows of the connected spaces open to it from inside. It is the family gathering space that is situated on the ground level. The Iwan façade is usually decorated with ornamental niches made in plaster and ornamental doorframes and windows made in Mosul alabaster. On the Fist floor, we can usually find the Tarma, a transitional space open on one side toward the Riwaq, not vaulted and supported by one or two pillars. The Riwaq is a kind of balcony or loggia on the first floor and works also as a transitional space for accessing the family rooms. In the Moslawi houses, the family rooms are not fixed for specific function but they are changing along the seasons of the year so usually, their interiors are devoid of any furniture. However, they are decorated with ornamental niches at higher levels of the room[9].

The main architectural element in the Moslawi house is the courtyard which gives breath not only to the house as it provides light and ventilation to the habitable spaces around it as well the privacy and security but also, to the urban form of the city. It works as the modern-day living room and the centerpiece of the Moslawi family life. A multipurpose space exterior volume inside the house, usually square or rectangular in shape. It is

Fig.18 Historical Al Tawalb House shows the configuration of the courtyard with the decorated arches and the different heights of the floors. Image by Un habitat Iraq, September 2021.

Fig.19 Iraq. Mosul. Looking S.E. showing Tigris river in the distance, 1932.

bounded by the spaces from three or all four of its sides, while all the rooms open directly or indirectly into it (Fig 18). The proportions and decorations of the courtyard are very diverse, some of them are characterized by the 13th Mosul architecture style reflecting the Islamic architecture, while others are simpler and more neo-classical[9].

Moslawi houses are characterized by passive techniques for cooling and ventilation similar to the other islamic historic cities with a similar arid climate. Some of those features are the Shanasheel, Malqaf, and the Badgeer. The shanasheel is a closed balcony, besides its function for providing lighting and privacy for the inner space, it is also an efficient ventilation element. The malqaf is commonly used in Moslawi houses, is a type of skylight that is higher than the roof level for catching the clean and cool air and redirecting it to the lower rooms using the attached flues. The badger as well works as a vertical shaft for pushing the cool air towards the lower floors to the basement level[9].

4.3 The Souk System.

The Souk of mosul, main features and the Spatial structure.

-The Islamic World And The International Trade.

Starting from the 8th century, the Islamic world has played an important role in the international trade. Placed in a strategical point between Asia and Europe, the Middle East was controling the commercial paths such as the «silk road» until 16th century. Many luxurious products imported to Europe from India and Asia were transiting by the Middle East.

The Islamic world has beneficiated during centuries from this exchanges and many cities of the region have been developed thanks to them. Cities like Damascus and Bagdad were resting points for the caravanes crossing the desertic areas of the region. This dominant position in the intercontinental trades influenced the urban fabric of this cities and created specific typologies.

When Europe discovered new roads overseas to reach India going around Africa, the region lost its monopoly. After the 16th century, the old commercial roads remained importants at a regional scale and commercial activities contrinued to be vitals in the urban life of the Islamic cities.

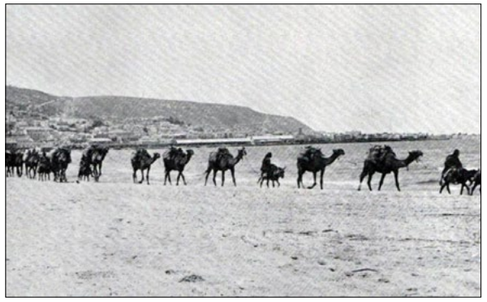


Fig.20 A caravan traversing Shemen Beach in Haifa, 1 January 1887.

Fig.21 Iraqi market souk in Mosul City northern Iraq, 1932.

-The Islamic Souk.

The market place or the shopping area in the Arabic Islamic world has been known with the Arabic name souk. Another Persian word called “bazaar” also used to indicate the market place in many Islamic countries, The term bazaar also used in some places to indicate the parts of the souks that are covered or vaulted. The term Islamic souk is used mainly for indicating those typologies of market place that share the same characteristics and features which has been built and taken their final shape during the Islamic rule and can be found only in the Islamic cities[1].

The form of the Islamic souk is considered as one of the important original productions during the Islamic rule as there is no evidence that the form of Islamic souk has ever been exists in non-Islamic cities, even those founded by romans and Greeks[2]. As seen by scholar Eugene Wirth who was rejecting the idea of the Islamic city but nerveless, he admitted the originality of the Islamic souk indicating that it is the only innovation that one can find in the Islamic city in comparison with other forms of cities[2]. Clifford Geertz argues that if Islamic civilization can be characterized by one of its leading institutions, then the souk should be the first candidate additionally he described the Islamic souk as a cultural form, economic type and social institution[2].

The form of the souk considers as an important urban design element in the Islamic city, it’s been considered as the spine and backbone of the city form as the mosque is considered the heart. In the early decades of the Islamic cities, the markets were more informal and the products were direclty displayed on the ground. Ambulant vendors were moving around the most dynamic areas of the city such as the mosques or the gates. After some years, informal markets evolved into permanent structures providing separation between each shops. The morphology of the souk grew to become an urban element where small partitions of the space create an economic network in the city[2].

The souk is always to be found near to or around the Friday Mosque where maximum social interaction between Muslims occurs (Fig 22,23,24). So, it serves as the focal point for social interaction and communal life beside its original commercial function. This combination creates a unique institution which can be just found in the Islamic city which distinguishes it form other cities. Also, in cities such as Aleppo and Damascus which were a pre-Islamic settlement and the decomposition of the original plan had already begun, the souk was taking the same place near to the Friday Mosque[3]. Friday mosques were usually occupying the center of the Islamic city so locating the souk near to it was for giving the people easy and short access to the facilities of the city, as well as to make it easier for the shoppers and the shopkeepers to attend the prayers in the mosque.

In relation to the formation of the souk, by investigation it’s been clear that the development of the souk

1 L Brown, From Madina to Metropolis, 1973.

2 A Jihad Abdullatif, “Islamic Souqs (Bazars) In The Urban Context: The Souq of Nablus”, 2021.

3 A Hourani & S Stern, The Islamic city, 1970.

happens incrementally not in one stage until reaching the final shape which could take years. Another important aspect is that the religion was playing an important role in the formation of the different parts and the goods arrangement inside the souk and which part should be near to the mosque and which should be away and out of the city gates[2].

- THE SOUK ORGANIZATION AND LAYOUT.

Ibn Battuta has claimed that the typical organization of the Islamic souk it was almost the same in every Islamic city, as he reported that while visiting the Muslim quarter of a Chinese town, he observed the exact similarity between it and the towns of Dar Al-Islam (Islamic cities). the general structure of the souk organization is the same everywhere as the traders of same goods and craftsman of same crafts were grouping in the same area around the souk, moreover they were likely to have their own lane completely. This original character of the Islamic souk has been reported in the early cities founded by Muslims like in Al-Kufah, Samarra and Baghdad. Al-Yaqubi observed in the souk of Bagdad that for traders of each specific good there were defined lanes and there is no mixing between the trades or the categories. Also he noticed that different crafts were separated and grouped each one together in separate lanes inside the souk structure[4].

The division of the souk by crafts and trades in fact, had several aids. regarding the traders and craftsman this grouping gives them the opportunity

4 G Grunebaum, Islam: Essays in the Nature and Growth of a Cultural Tradition, 1955.

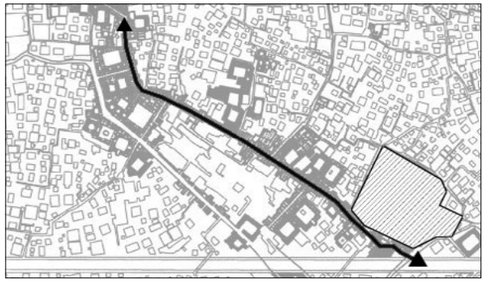


Fig.22 Isfahan bazaar axis and friday Mosque, 17th centenary.

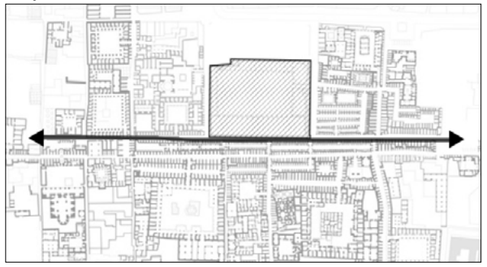


Fig.23 Aleppo bazaar axis and friday Mosque, 1931.

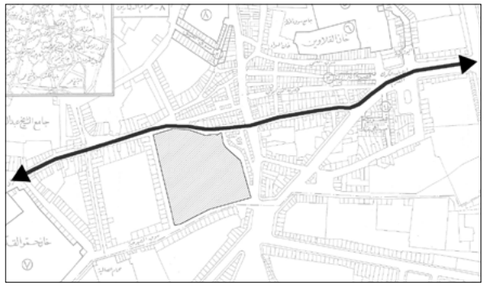


Fig.24 Mosul bazaar axis and friday Mosque.

to organize themselves and to control the goods and trades, as well as from social point of view, it creates informal ties between them. As for the customers this grouping system gave the opportunity for inspecting the goods and comparing the prices and quality of goods in a small area, preserving the effort[2].

The form of the Islamic souk can be found in two patterns the first one is the linear souk, as in Isfahan which consists of one major spine with shops on both sides of it. The spine is usually connecting the souk area with the Friday Mosque extending to the city main gates linking the main facilities with the supporting ones. The second typology or pattern that can be found, is the network of souks which can be described as a small-scale city, this typology can be found in Aleppo, Mosul, and Tunisia souks. It consists of many streets which intersect together creating the forms of the buildings. regarding the clustering of the shops, unlike the linear souk, the shops are grouped either back-to-back along a common wall or around an inner space which is usually a courtyard that is being used for several functions. As mentioned before that the traders selling the same products were being clustered in areas that have been physically indicated through the form of the souk as we can find usually, this separation happens in the cross-points of the souk main routes. Moreover, the intersection area is to be found higher than the other parts with a dome cover or opened to the sky[2].

regarding the height of the souk, it depends on the importance of the route so if it's a major one which connects the souk facilities with the gates and mosques it would be higher, wider and longer than the secondary ones. Usually, the height of the is proportionally related to its width, it's often to be twice the souk width. The architecture of the souk is minimal and simple its usually characterized by its roofing system which could be vaults or domes as one can trace the building boundaries by surveying the roofing system. The height of the buildings is usually not more than two levels, while shops are occupying the ground level and the upper stories which have openings to the shopping streets either belongs to the adjacent houses or could be used as a storage space for the shops beneath[2].

The souk structure is not to be found alone within the city but it's part of a big system that consists of different private and public buildings and facilities. The souk usually has different entrances between major and minor ones. The major entrances connect the main routes of the souk with the Friday Mosque and the residential areas, while the minor ones are providing the access to the facilities nearby like hammams (public baths), khans (or wakalat), Qaisariahs, Madrasas and local Mosques. All those facilities are helping in activating the livability and improving the social interaction inside the souk complex, while at the same time it works as a buffer zone for separating the public activities from the residential buildings. most of those structure except the hammam, are characterized by a courtyard at the center surrounded by the different functions. the composition of those courtyard buildings creating a series of positive spaces and voids within the dense fabric of the Islamic city, provide the souk a unique image within the city form[2].

Among the facilities mentioned before there were the khans and Qaisariahs which have a commercial function and were important in the trading operations. Khans were the most corelated to the souk regarding their functions also it can be referred with a Persian word called caravanserai. They were designed for accommodating foreign traders and their goods. khans' buildings were distributed around the souk and near the gates of the city and as well each group of traders have their own khan. The geometry of the kahan were usually in square or rectangular shapes with a central courtyard and one entrance, while the height is usually between two to three stories. in the upper levels there was the rooms for accommodating the merchants and where also their goods could be deposited. The ground floor was used for stables and also as storage spaces, while the exterior part was hosting some shops[5].

Another important typology within the souk structure that has a commercial function is the Qaisariahs. Usually, it's not that much repeated inside the souk, unlike the khans, often to be found at the heart of the souk complex while in some cases it can be located near to the souk gates at one end of the souk major spine, like in Isfahan Bazaar and Mosul souk as well. Qaisariahs are characterized by a rectangular hall that can be described as an indoor street, covered with domes and colonnaded from inside, usually has two gates at its two shortest sides. Qaisariah building is considered to be the focus of the souk as it is more architecturally developed than the other parts of the Souq. The unique structure of the Qaisariah reflects on the types of products that are sold inside it is usually precious products, like textiles, jewelry, or wholesale trade[2].

- The Historical Souk Of Mosul.

The old Mosul souks have been established since the beginning of Mosul city on the western bank of the Tigris River after the fall of the Assyrian Empire. The market began to be distinguished as an independent structure with the beginning of the Islamic State rule in Mosul, specifically at the period of the Umayyad state. The location of the market at this time was at its nowadays location near El Gesr gate, in reference to the bridge of boats that the Umayyads established to help citizens cross from Nineveh to Mosul (Fig 40). The location of the market was chosen for its proximity to the bridge to facilitate the buying and selling process for the citizens of Mosul and Nineveh and to be close to the commercial convoys that were coming for trading in the market. In the era of the Atabeg state, the structure of the city of Mosul developed according to the structure of Islamic cities such as Aleppo and Damascus. Al-Nuri Mosque has been built in the center of the city, so markets began to arise around the mosque, as the Friday Mosque is considered the heart of the Islamic city[6]. The prosperity of Mosul souks around the Al-Nouri Mosque continued until the era of the Ottoman states, they began to pay attention again to Bab Al-Saraya souk, and it became the most important city

5 I Lapidus, Muslim Cities in the Later Middle Ages, 2009.

6 R Al-Hamdani, "The old Mosul markets are a cultural and historical identity that its people are trying to restore from the heart of destruction", , 2021.

market. In the era of the Ottoman Empire, markets were of great importance in the shape of the Islamic city, and at that time, khans, Qaisariahs, and services surrounding the market such as schools and baths appeared. Since then, Bab Al-Saraya souk is the heart of the old Mosul city markets[7].

Bab al-Saraya souk did not gain its importance among the markets of Mosul, not only because of its commercial importance, as it was famous for the spice trade coming from India and China, also for selling historical books for thousands of years, it was the trading center for goods and ideas. It gained its importance because of its social and heritage importance in the shape of the old city. The Mosul market constitutes an important element in the identity of the historical city due to its architectural character that dates back to hundreds of years and historical symbolism that gave Mosul its fame and uniqueness among the cities of the Islamic State. Historian Sarah Shields argued that the economic importance of the souk is closely linked to its architectural style, and it strongly contributed to the formation of Mosul's complex identity, as the different governments and the great families of Mosul were gathered around it. She added that it is considered a center of cultural and religious diversity, as the Churches of various denominations have been established around it, as well as Islamic religious institutions. From the social point of view, we found that the market contributed to the social diversity of the city, as there were specialized markets for the middle, upper, and working classes, which strengthens the social cohesion between the various classes of the city[8].

Bab Al-Saraya souk in old Mosul was famous for its foreign trade as well, as it was the destination of Iraqi cities and the surrounding cities. The souk was famous for the local agricultural products produced by Mosul people in its surrounding lands, and it was a destination for merchants coming from abroad due to its high quality. These markets were also linked to international markets such as Britain, Turkey, China, and Aleppo, which made it a destination for major merchants, and thus the markets of Mosul formed a large proportion of the city's economy, culture, and identity[9].

Souk Bab Al-Saraya has taken its current form after hundreds of years of change, as is the case with the other Islamic markets that grew organically and were affected by the change in the shape of the city. One of the important elements that affect the formation of the market is the diversity of professions and crafts in the city, as this appeared on the market structure and its many divisions, due to the concentration of professionals and craftsmen in a specific area, forming an independent market and been called by the name of the craft. According to the current structure of Bab Al-Saraya souk, it can be divided into two unseparated sections: Bab Al-Saraya Market and Al-Manara Market, with Nineveh Street in the middle. From each market, there are markets

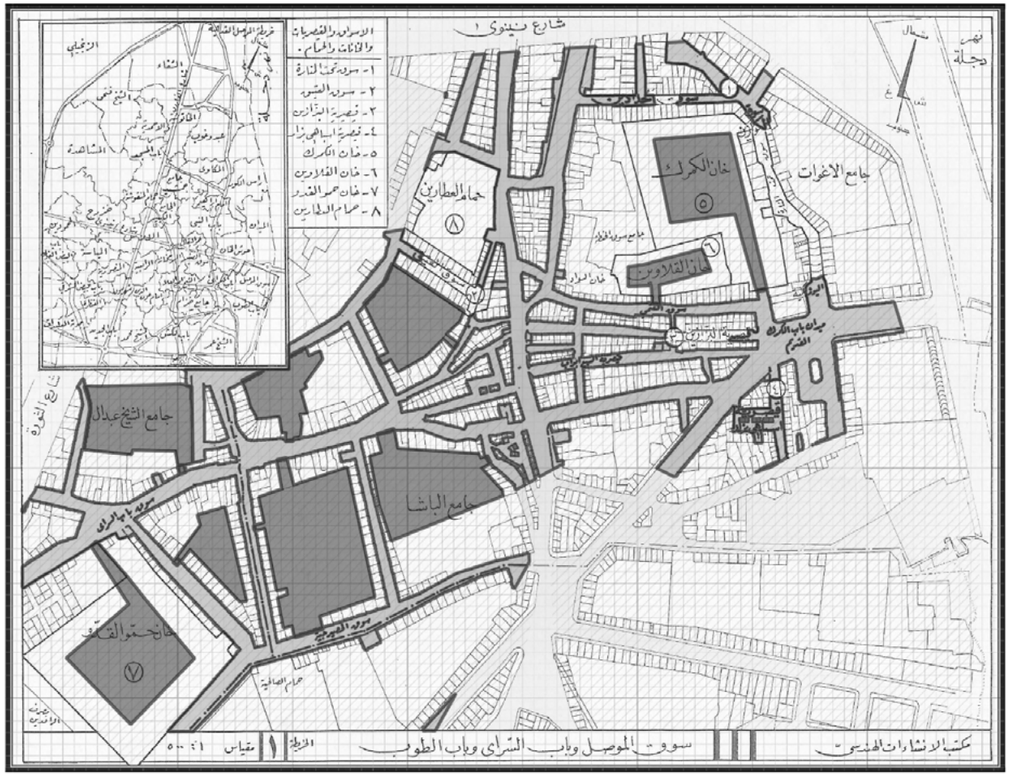
7 O Jasim, "An identity created by the market: Mosul's markets that were destroyed by war and their economic and cultural value", 2017.

8 Unesco, "Revive the Spirit of Mosul", 2018.

9 Y Al-Daffaie, "After Islamic State: how local shop owners in Mosul are rebuilding their historic markets", 2021.

1-Al-Sheik Abdallah Mosque. 2- Khan Hamu Al-Qadu (site 1). 3- Al-Basha Mosque. 4- Al-Attarin Bath. 5- Al-Atiq Souk. 6- Al-Sawad Khan. 7- Qaisariah of the seven gates. 8- Khan Al-Qalawiyin. 9- Qaisariah Sebahi Bazaar (site 2). 10- Khan Al-Kamruk.

Fig.25 Urban survey of the souk, The urban renewal project for the city of Mosul, Section E and F (Report proposals and directives).



Streets.
Buildings' courtyard.

Fig.26 Urban survey of the souk, The structure of the souk showing the main streets and buildings with its courtyards.

specialized in crafts and various merchandise, such as the shoe, pottery, fabric, and many other markets. This division helps the buyer to purchase goods in a short time and with the best price and highest quality, due to the proximity of merchants and the possibility of comparison.

Bab Al-Saraya and Al-Manara market contains many buildings that have different functions and contribute to the vitality of the market at all times (Fig 25). Most of these buildings have a commercial function for buying and selling, such as the khans surrounded by markets. The task of the khan was to receive merchants and distribute local or imported products to the surrounding markets. The khans were divided according to the type of products they receive. One of the most famous and largest khans of the market is Khan Al-Kamruk (Fig 27), which is one of the oldest and most important markets in old Mosul, due to its proximity to the Tigris River. It was used to receive the goods coming through the river and distributing to the rest of the market, among the market khans were also Khan Al-Qalawiyin (Fig 28), Khan Hamu Al-Qadu and many other khans. Among the other buildings that have a commercial function are the Qaisariahs, which consists of a covered hallway divided into shops, Qaisariah building has a distinct architectural character from the rest of the markets. Among the Qaisariahs of Bab al-Saray market are the Qaisariah of the seven gates and Qaisariah Sebahi Bazaar, which is located near Bab al-Saray, one of the main entrances to the market. The market also contains other buildings that have different functions, like mosques, the most famous of which is the Al-Aghaat Mosque near Khan Al-Kamruk and Al-Basha

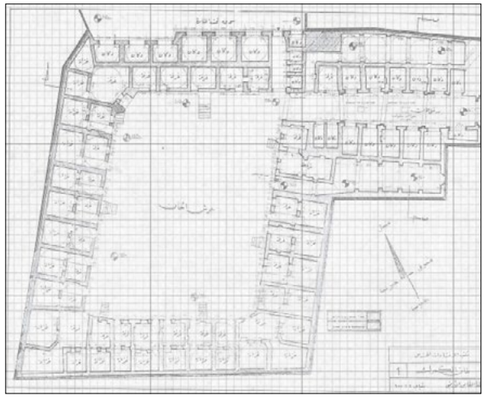


Fig.27 Plan of Khan Al-Kamruk, 1982.

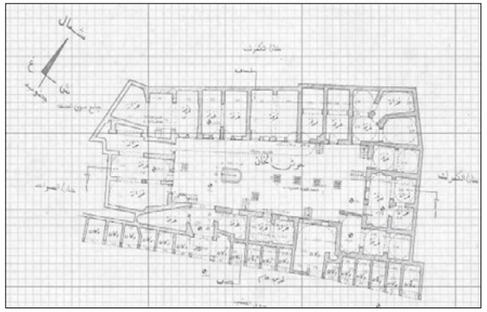


Fig.28 Plan of Khan Al-Qalawiyin, 1982.

Mosque. The market also includes baths such as Salhiya and the Attarine bath (Fig 14). This diversity of functions is what gave the market its historical importance and made it an important part of the identity of the old city of Mosul[10].

- The Structure Of Mosul Souk.

The spatial structure of the Islamic souks has been developed mainly into two forms: the first one consists of a large enclosure divided by main and secondary streets leading to courtyard buildings which surrounded by shops. the second typology is in a form of linear pathway or can be called as a spine that is roofed or semi-roofed surrounded by shops and stores (Fig 30). Generally, the urban form of the Islamic souk was growing as a direct response for the functional needs, the available construction materials and the climatic conditions. Regarding Bab Al-saraya souk we can find that it belongs to the first typology so we have a series of courtyard buildings that varies in size and the composition of those central spaces with the city fabric defines the main and secondary streets (Fig 26). Also, according to the functional needs, we can find that some parts of the souk are working as a linear street surrounded by the shops that are attached to the central buildings. The structure of Bab Al-saraya souk is similar to Aleppo souk as it composed of courtyard buildings connected with streets but in Aleppo the structure is more regular following the traces of the roman city[2].

10 O Mahmoud, “Markets and Khans in Mosul through some Sharia court records from 1831 to 1918”, 2010.

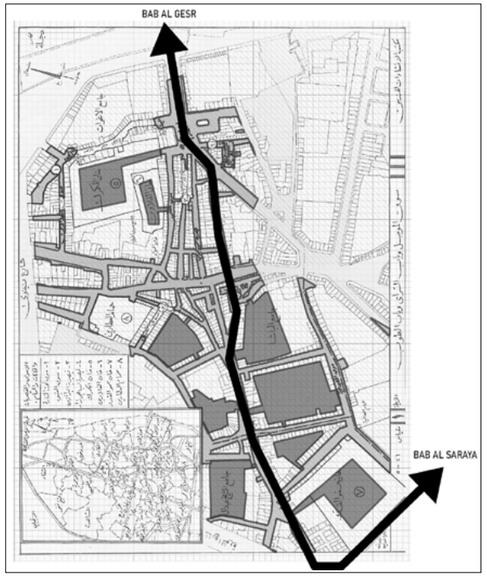


Fig.29 The souk of mosul general structure and the relation with the historical city gates , 1982.

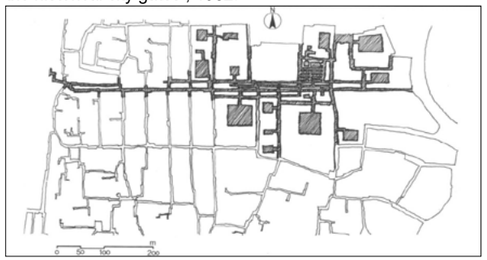


Fig.30 Flow and urban space in old Aleppo souk, The architectural originality of the Arab traditional souk, 1980.

according the current structure of the souk we can see the central spine which is Bab Al-saraya Street, works as a magnet for the different shopping areas and the other functions and it starts from the old city gate Bab Al-Gesr moving linearly south till the other city gate Bab Al-saraya. along the central spine we can find the distribution of the enclosed spaces of khans each for different product and craft. the spatial qualities that the central spine provide including the sequence of dark and light spaces helps in maintaining the feeling of continuity also the distribution of landmarks like the minarets of the mosques helps in enriching the user experience along the street. along the central spine we can investigate the variation in the heights of the buildings that would not exceed the two-floor height and the small width of the spine which respects the human scale as described by AL-YAWIR stating that “There was thus a symbiosis between man and his context, creating an urban environment that was basically human in scale”[2].

From the historical images of the souk, we can notice the roofing structure of the different parts and it was mainly domes and vaults creating a homogenies image that has been lost by the time (Fig 32). The most important element in the souk is the streets where the activity of the souk take place, it is the borders of the buildings with the attached shops. In the souk of Mosul, the streets have grew organically not following a specific pattern but affected by the functional needs, so we can find that the streets varies in width following the surrounding borders which enrich the spatial structure of the souk (Fig 31). by the time the form and image of the souk has changed a lot but

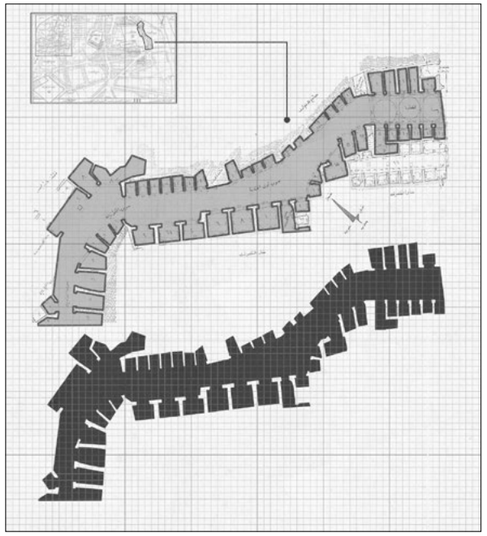


Fig.31 Al-Manarah Souk, Section from the souk showing the borders of the street and the cells as part of this borders, 1982.

Fig.32 Historical image for the souk north gate showing the old structure of the souk and the roofing system, Ucl institute of Archeology, 1924.

the overall structure has been preserved following the spine and the central buildings surrounding it.

- The Impact Of The War.

one of the main results from the conflicts and wars that become roughly worsened by the development of heavier weaponry machines is the intended destruction of the architectural heritage. This considers one of the war tactics that is conducted not on the front lines of the war but as a way for genociding and rewriting the history for supporting the conquest. In the war situation, the architecture is not just preserved as a structure that has a certain function but it is seen as a body that expresses a specific culture, for example, the mosque is not simply a mosque but is evidence for the presence of a certain identity, as well as the library seen as a place that connects a certain community with its past. These buildings are the objectives of the enemies not just because they are in the path of the military forces and machines. Enforced forgetting as Robert Bevan described in his book “the destruction of memory” is the aim of the conflicts by distracting structures and places with a specific meaning that are selected for oblivion. these buildings are the objective of the enemies as it evinces history, identity, and memories[11].

Another mode of conflict is between the groups with different ethnicities or religions, that was the case in Mosul that happened inside the country between ISIS that from their point of view were presenting the right Islam and the government that according to ISIS are Infidels. These kinds of groups are rallying around their sub-national communities not the national flag their belonging to their identification is more important than the neighborhood, city, or nation-state. Particular brutality is activated in this kind of conflict which defines people outside the group as “the others”, this embodies all people with different nationalities, races, classes, religions, ideology or values and appears in all fields of the conflict whether ethnic or economic and expansionist. This is the reason in this case for killing the other and dismantling their heritage as a way of dehumanization. Architecture at this kind of situation is heightened especially the monument or the sacred buildings that belong to the other and commemorate their history as if the bricks and stones are sinful for being representative of the others[11].

The destruction pattern by ISIS in Mosul was clearly targeting the monuments which were as victims beside people, where each side of the fighting was seeking tactical advantage by conquering it. Starting from Al Nuri Mosque and its historical minaret which was not just an emblematic centerpiece of the city, but it has a significant historical value for the image of the city, also the churches have been badly destructed moving to Bab-Al saraya souk that has witnessed severe destruction to its historical commercial buildings, the mosques, and the surrounding facilities as we can compare between the satellite images between 2004 before the war and 2016 after the victory over ISIS. There are a lot of building in the souk that has been totally destructed like Khan al-Kamruk, Qaisariah Sebahi Bazaar, and many more also some buildings that are badly destructed like

11 R Bevan, The Destruction of Memory, 2016.

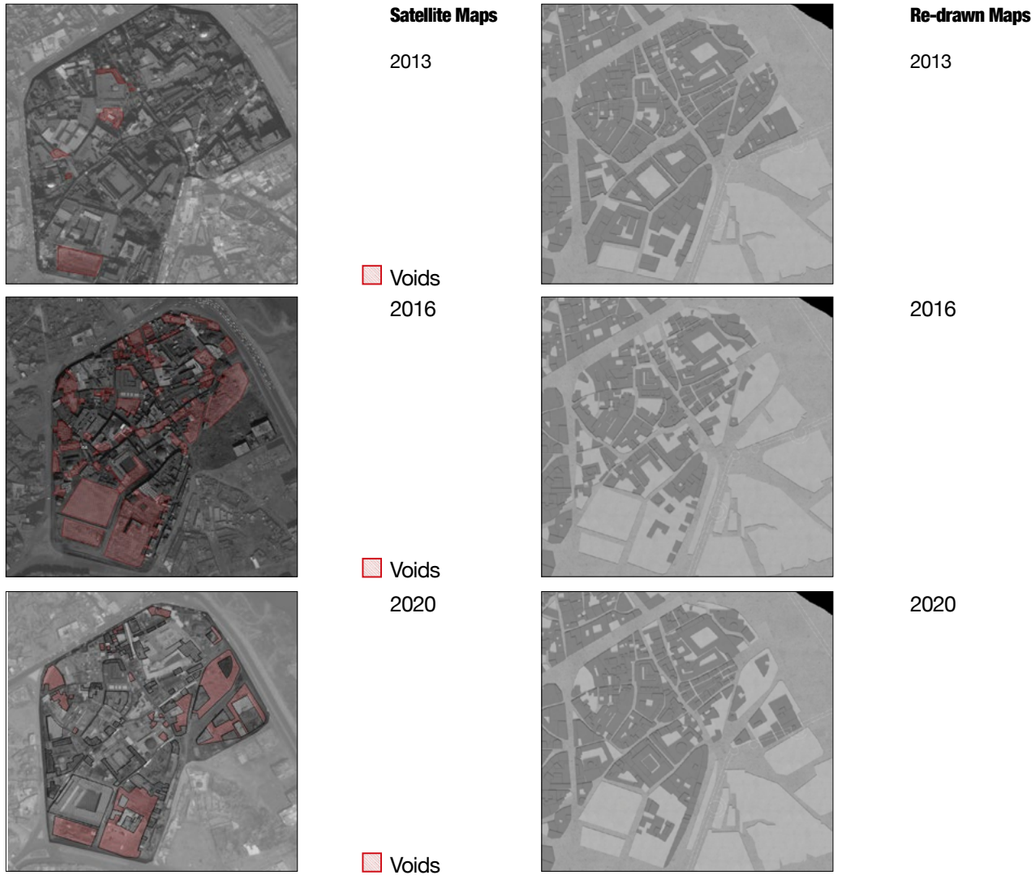


Fig.33 Analysis of the Souk voids before the war after and current state with the redrawn maps.

Khan al-Kamruk and the seven doors Qaisariah.

Reconstruction operations began in the markets of Mosul and its historical buildings in general after the victory over ISIS, with the help of international organizations like UNESCO, and others. Its been identified that the souk is one of the sites which needs urgent reconstruction and as we can see from the satellite image of 2020 that some parts of the souk have already been rebuilt as it was before the war and life is returning back to the souk gradually.

- The Selected Sites

According to the previous analysis to the souk area and the level of destruction that affected the buildings, it's been importatnt to implement an original criteria while selecting the sites for working on and porposing a new buildings that would be part of the souk organism. Accordingly its been found that there are two main factors that would help in identifing the siles. Firstly, dealing with this kind of historical sites needs to be done very critically considerign the past events and the relation with the historical elements of the city, so the selected sites needs to be with a strong historical memory in peopls' mind. Secondly, the selecton must be based on the important economical role of the souk, as well the different destruction levels the souk has been exposed to (Fig 33). So, the selected sites need to be with a high emergent value which would help in accelerating the revive of the souk and returning the commercial cycle as it was.

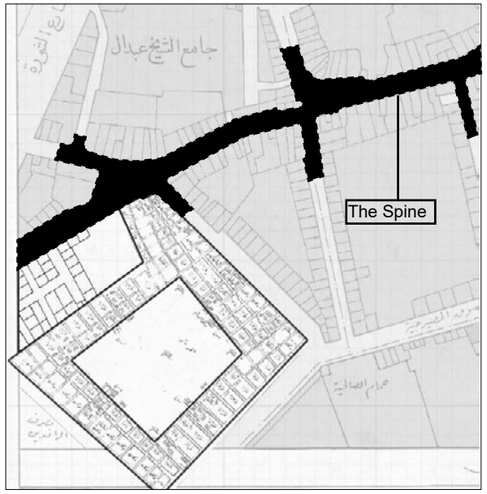


Fig.34 Khan Hamu Al-Qadu where the first project is located with relation to the spine of the souk, 1982.

Fig.35 The severe Destruction of Khan Hamu Al-Qadu after ISIS, Ali Al-Baroodi, 2018.

Based on the urban structure of the market and the mentioned criteria its been found that the spine of the souk that connects two of the historical city gates from north to south, Bab Al-Gisr from the north and Bab Al-saraya from the south, is very important element while identifying the sites (Fig 29). The souk spine has a very important historical value and commercial role as all the services and commercial buildings were distributed on it.

By identifying the destruction level for the buildings along the spine we selected two sites with a high emergency level (Fig 25). The first one is at the north part of the spine near Bab Al-Gisr gate (Fig 36,37). It is a very strategic location as it is surrounded by many historical buildings, like Khan Al-Kamruk, Khan Al-Qalawiyin, Qaisariah of the seven gates, Al Agawat mosque, and its also near to the Tigris river. Before the war, the site was occupied by one of the most unique architectural structures in the souk which is Qaisariah Sebahi Bazaar. The structure of the building was the typical structure for the Qaisariah building, consisting of two connected rectangles a linear and central one which are surrounded by the cells that appears like a sculptured structure into the thick walls of the Qaisariah. the urban relation between those three strong bodies, Khan Al-Kamruk, Qaisariah of the seven gates, and Qaisariah Sebahi Bazaar is what makes the north gate of the souk very clear as a starting point of the souk spine.

The second selected site is located at the south border of the souk (Fig 34). It is the ending point of the main spine near to Bab Al-saraya city gate wich gives the site its historical importance. As well the

Fig.36 Qaisariah Sebahi Bazaar where the second project is located with relation to the spine of the souk, 1982.

Fig.37 Arial view for the site of Qaisariah Sebahi Bazaar after ISIS, May 2021.

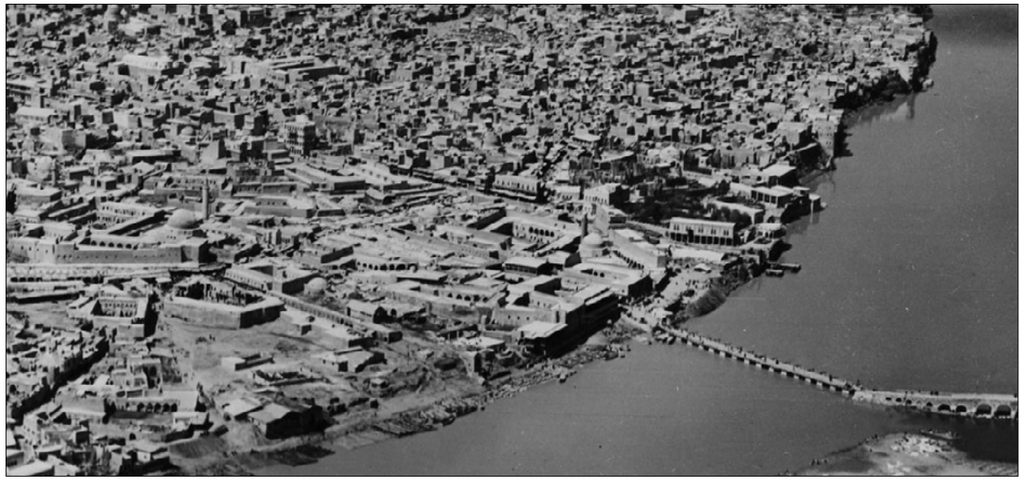


Fig.38 Arial view for Mosul city showing the boat bridge and the North gate of the souk with its historical form, 1928.

site is surrounded by number of historical buildings between commercial like khans and services like Al-Salhiya bath and Shaikh Abdaal Mosque. Aslo the site before the war was occupied by one of the biggest khans in the souk, Khan Hamu Al-Qadu that has been totaly distructed by the act of the war (Fig 35). The Khan is composed of central courtyard surrounded by two floor levels, nearly a square shape plan. The ground floor plan was used as a shopping cells and the first was used as a storage spaces for the goods.

Here it comes the importance of the selected locations as they are located at the start and ending point of the souk spine. So they are working as part of the souk gate structre. as for the first site it is compositing an intersting urban relation with the surrounding historical buildings. for the second site, the weight of the old khan as one of the biggest khans in the souk, was what making the site works as an ending point of the souk spine.

THE PROJECT

5.1 The Urban Axis (The Souk Spine).

Historically speaking, the city of Mosul had witnessed several developments and changes in its structure following different eras which ruled the city. The city form started following the Tigris Riverbank and the first settlements has been established on it. After the Islamic conquest, the city has started to grow organically following the Islamic city form. The growth of the city was not a haphazard process but followed a role that mainly came from the Islamic religion. Methodologically it is very important while approaching the city of Mosul to identify the urban facts of the city which are presenting the city identity. They are the devices and the urban attitude which constructed the collective memory of the city and its people. The structure of Mosul city was following a specific hierarchy which gives the most importance and respect to the monuments as they are the locus of the urban space and the heart of the Islamic city. The second level is the perimeter wall of the city which is a widespread archetype that distinguishes the Islamic world. It is a complex mechanism that gives encloser to the city and plays an important identity role. The third level is the city axes and spines which connect the monuments, main city services, institutions, and the most livable urban cores in the city.[1]

Accordingly, the urban axis is a very important critical concept that the thesis stresses on, as a tool for the reconstruction of Mosul city. The meaning of the axis in the English language according to the Merriam-Webster dictionary is “a straight imaginary line that something is going on around it, like a globe” also it is defined as a «straight line which divides the figure evenly into two parts”. In the Arabic language, the Almaany dictionary defines it as “An iron, which a reel revolves around it, the axis in geometry is a straight line between the poles of the ball”. So linguistically the concept of the axis is either imaginary or a physical line that has a clear direction[2].

The definition of the axis in architecture is the line that connects two points. The relationship between the two points of the axis determines the strength of it, supported by Ching who stated that “the line has the strength of the two-linkage point”. Accordingly, the most important characteristics of the axis which identifies the degree of relationship between the start, end, and the supporting nodes are its ability to indicate the significance of its meaning and strength. The axis in architecture has a dynamic dimension that identifies its direction and nature of its growth. Historically the axis concept has been used for identifying the geometry and the proportion of the shapes, as in the ancient pharaonic and Greek temples, and also it helped them in discovering the golden ration concept[1].

In terms of directivity, the types of axes can be categorized into two main types central and multi-directional axis. the central one is considered as a dominant spatial component that dominates the structure of the city. It controls the urban space and

1 T Lolli., Il caso di Mosul. Tra lettura urbana e ricostruzione.

2 N Hasan., Al-Hinkawi W., & Alatta A., The Role of Planning Urban Axes in the Sustainability of Iraqi Cities Mosul-case study, 2017.

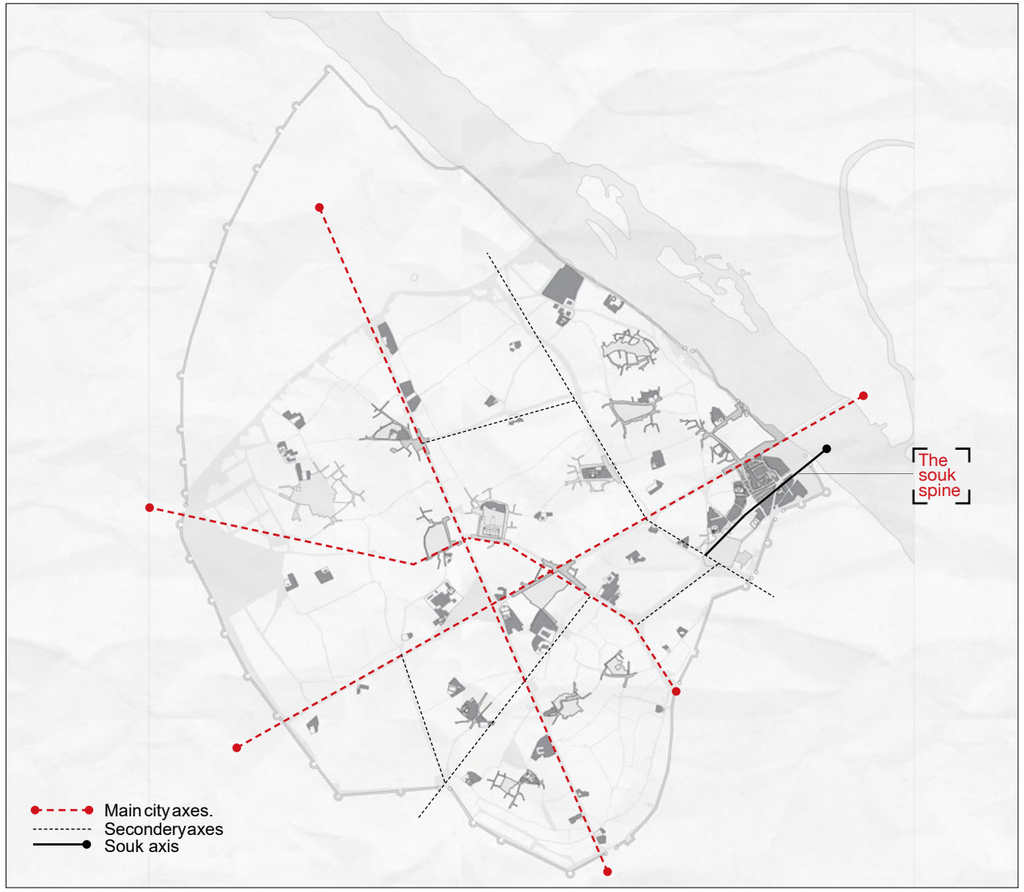


Fig.01 Map for the city of Mosul showing the main city axes and the secondary ones, in addition to the main monuments in the city and the Souk spine.

organizes the main urban functions as it considers the backbone of the city. The central axis as well plays an important role in the growth of the city. As for the multi-directional axis or can be called the broken axis, it is not a straight line in the urban fabric due to the presence of urban elements which affect the growth of the axis. This second typology is more flexible, respecting the human scale and giving a unique experience and qualities to the urban space. The multi-directional axis is very present in the Islamic context which tries to adapt and respect the distinct urban elements as in the case in Isfahan city in Iran (Fig 02), as well in Mosul city[1].

In the city of Mosul, the axis idea and their strength and meaning were very connected by two main elements firstly the gates of the city. The main axises of the city were derived from the main city gates and have been gaining their strength and role in the city by following the strength of the gates. Secondly the monuments as the interconnected nodes along the axis line which gives the importance and value for the axis. Those two elements have combined together for configuring the axises of the city and the overall urban fabric of Mosul (Fig 01).

Concentrating on the souk of Mosul as the selected study area, we can investigate the idea of the urban axis or spine very obviously. Following the Islamic form of the souk, as indicated before, the souk of Mosul has been developed and grown around a central spine which is Bab-Al Saraya street (Fig 03). The strength of the souk axis comes from the historical nodes that are distributed along it, and especially the starting and ending point of the spine.

Fig.02 Map of Isfahan bazaar shows the strong spine of the bazaar, The sense of unity: the Sufi tradition in Persian architecture, 1973.

The importance of the north and south entrance of the spine streaming from its connection with the historical gates of the city. The north gate of the spine was connected to Bab-Al Gesr while the south gate of the spine was connected to Bab-Al Saraya. Furthermore, what gives importance to the north and south gate where the thesis projects have been developed is their urban configuration. The north gate was characterized by a unique spatial urban form that creates a sort of public plaza surrounded by three important historical structures, Khan Al-Kamruk, Qaisariah of the seven gates, and Qaisariah Sebahi Bazaar, where the project site is located, as it was destructed during the wartime. While the south gate was addressed by the monumental scale of the destructed Khan Hamu Al-Qadu where the second project site is located. The aim of the first project is to recreate the spatial structure of the north gate reconnecting the three structures together. On the other side, the aim of the second project is to reproduce the monumentality of the distructed khan for adreesing again the south gate of the souk spine.

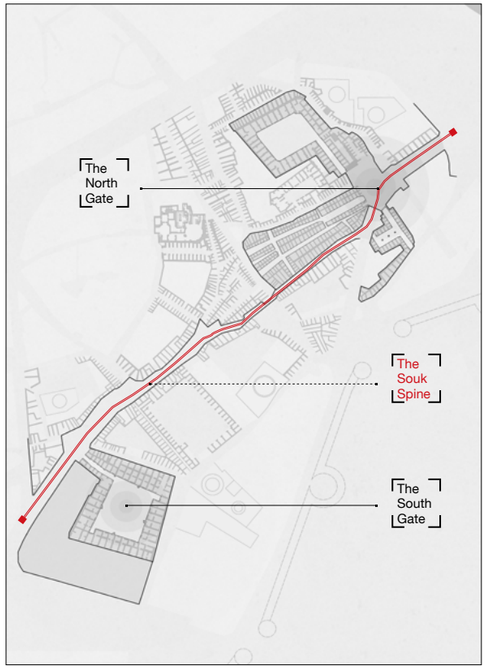


Fig.03 Map of Bab Al-Saraya souk with the presence of the spine North and South historical gates where the projects are located .

5.2 The Importance Of Alignments

We firmly believe that there is the possibility of tracing elements in the urban fabric. These elements outline potential but not necessarily material identities. These elements provide the design with non-physical reference boundaries and internal dematerialization links. Therefore, when trying to find a reasonable architectural solution, the investigation of the site based on the existing physical boundaries and historical trajectory has become a very important reference value that affects the final form of the design and the possibility of architectural composition. With this goal in mind, an attempt will be made to outline the historical introduction of urban architecture, highlighting certain structural features of the urban structure. However, it should be pointed out that when we weigh the historical value, the recourse to history does not have a justifiable purpose in itself, but rather the objective of unraveling the city's constituent processes and outlining the cultural environment of reference – as Ernesto Nathan Rogers states: «considering the environment means considering history» (Rogers, 1955) – According to his argument, we can understand that when architects think about reasonable solutions, these two directions become a potentially very important reference factor: history as a tool is useful for verifying the construction project and its background. In the process of seeking coordinated measures, it should give full play to its non-material substance value, and at the same time, it has become a necessary reference factor in discussing the fact that its identity of the intervening architectural solution is appropriate. On the other hand, history can also be used as a place of origin.

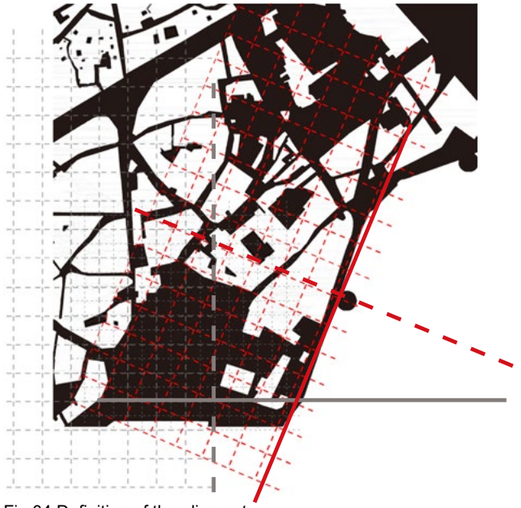


Fig.04 Definition of the aligments

Background operation and nature of analysis tools. Therefore, the appropriate analysis toward the historical configuration and proper way of using the essential alignments related to both the trace of the historical value of the architectural importance and existing surroundings must be the fundamental elements for us to define the new souk area.

Therefore, due to the occurrence of this series of tragedies, the impact of the war has seriously destroyed the original order on the site, whether it is the various architectural results left by the historical trajectory, or with the development and change of society, it was originally embedded in the souk system. The different functional areas in the system except the commercial area have become incompletely clear and easy to verify the identity. Therefore, we believe that it is necessary to sort out and classify the potential value of the historical trace and the material constraints of existing buildings before designing and converting it to a reasonable framework made up by the historical alignments and the limitative alignment by respecting the surroundings, making it the most basic guide for design. This guidance is based on the care of the site and the reinterpretation of the potential historical trajectory. And this re-interpretation will lead us to find a more reasonable architectural combination possibility.

As a result of this original intention, we concluded the alignment as shown by (Fig.04), we convert the potential relationship between the monuments nearby into the red line as historical alignment, as well as the gray lines for the framework respecting the existing surroundings. Then by the help of this framework, we have chance to define the so called 'Spine' in our architectural system as the distribution system in the reinterpretation of new sok system. Showned in (Fig .05 and Fig. 06).

Fig.05 Main spine

Fig.06 Secondary spine

Fig.06 Redrawing trail: composing the spine

Fig.07 Redrawing trail :
1.enhance the alignments and separation
2.composing the central space

- The Reinterpretation of Souk Complexity

When we considered the most scientific method to reconstruct the souk area we have to take into account the complexity which is redefined with the ability to guarantee the various interactions among individuals. To do this we must grasp the essential features of traditional architecture and thenreinterpret the spaces in a modern way. What is most difficult is to recreate the spatial quality that allows the market to function as before. Meanwhile, it is tricky to insert new services that are capable of not distorting the nature

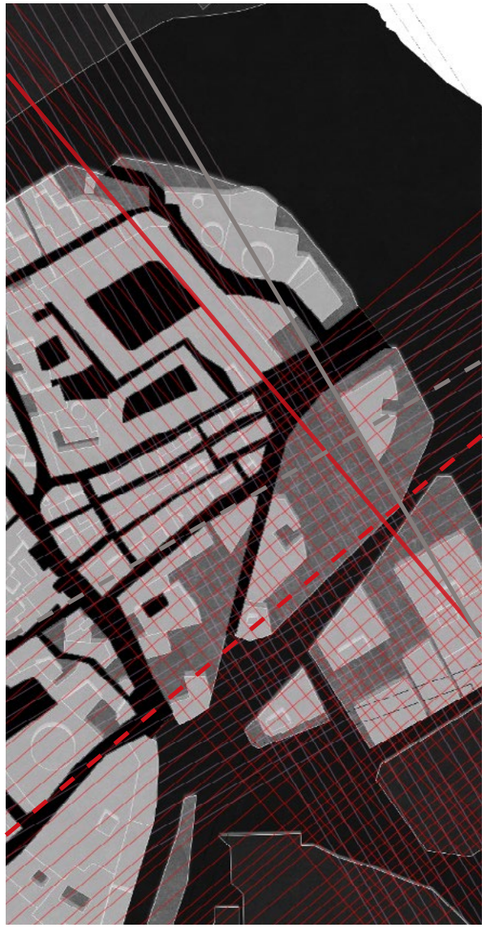
Fig.08 Redrawing trail :adjust the inner relation of space

Fig.09 Redrawing trail :enhancing the monumentality of boundary wall

of the city. Through the analyses it emerges that there are typological and architectural aspects that are repeated; they change in shape but not in substance. For example, the Spine usually constructs the main configuration of the souk system altogether with the repetitive commercial spaces which are historically constituted by the sequence of souk cells, as well as the functional space which plays the role as the central space. Therefore we are able to reinterpret the traditional souk system as the combination of the complexity which is made up by the linear distribution system and central spaces inserted on it.

Therefore during the developing process, we start with determining the central distribution system as the main skeleton of our composition idea, then composing the central space with respect to the surroundings.(Fig.06.) While the crossing of the two alignments reveals its un-sufficient characteristic of the identity of different historical values, also it provides stronger articulation when the central spaces are inserted into the main spine and secondary one. (Fig.07.)

After better defining the inner relation, the typological reproduction seems weak with our geometrical solution(Fig.5.08), hence, for bringing back the idea of traditional Islamic courtyard, and the collectivity usually happened inside the courtyard type of space. So we introduced the double-wall system for creating the constrain of serval central spaces in the left side of the project both for the more defined reproduction of traditional space also for enhancing the interface of an idea of the gate within the whole souk system crossing two sites.(Fig.09.)



Historical alignments Modern alignments

Fig.10 Defining the affecting alignments

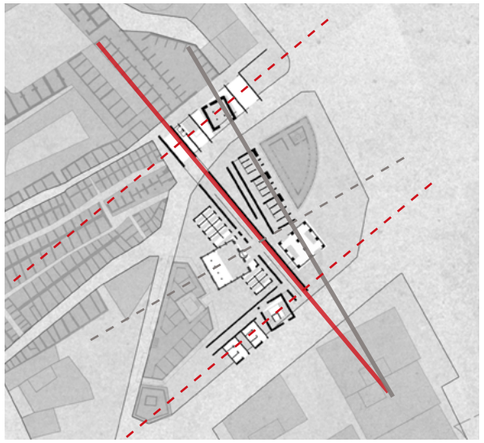


Fig.11 Montage 01

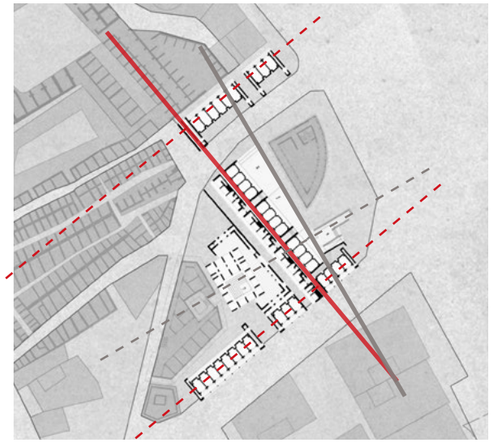


Fig.12 Montage 02

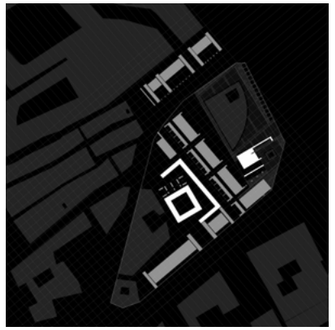


Fig.13 Redrawing trail 01

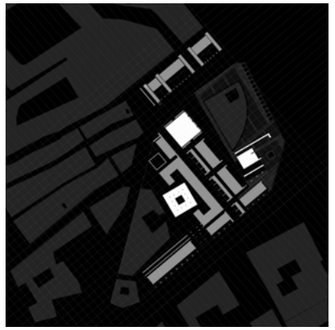


Fig.14 Redrawing trail 02

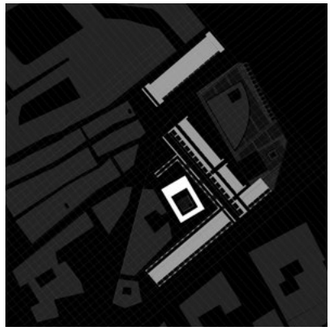


Fig.15 Redrawing trail 03

As for the second site, for the main concern of the alignments, we are still considering the historical value and existing surroundings. For the historical relationship, the project is based on the same area of the traditional Qaisariah Sebahi Bazaar (Fig. 4.36) which corresponds to the main Bazar over the street and maintains the intangible geometric connection. Therefore we mainly focus on reviving this relation across the block and connecting to the main spine. For doing so, we essentially put weight to enhance the historical trace among the new construction building and old ones. As we can see right part of the block now is occupied by a triangular building with the cervical boundary, even though the trace of this new construction is breaking the rule of the historical gate, we still want to respect the existing elements by maintaining a gap between the historical alignments and modern one. The developing process of the project started by coming up with the architectural montage by taking the plan of precedence architectural solution that share the common features of Islamic context to derive the very initial attempt under the consideration of former alignments and restraint which we have already studied. (Fig.11 and Fig.12) Initially, we were facing difficulties in giving appropriate solutions for dealing with this modern alignment, because it creates certain disturbing factors for clarifying the attitude for coping with the important historical value. Indeed, we can not ignore the unregulated new construction so we decided to main a void between this contradictory space for promising the most important value of traditional souq configuration has been prioritized. The further development of the architectural solution is all based on the previous mortgage. This method not only provides us with the relatively practical constraints of designing solutions by spatial relations instead of abstract geometries but also become a complex force that drives us to consider all the architectural aspects simultaneously. Therefore few redrawing (Fig.13-Fig.14) attempts have been come up by this method for continuing design developments.

5.3 Project proposal drawings

Fig.16 Overall axonometric view of two project proposals

Fig.17 First and second project plan 1:1000

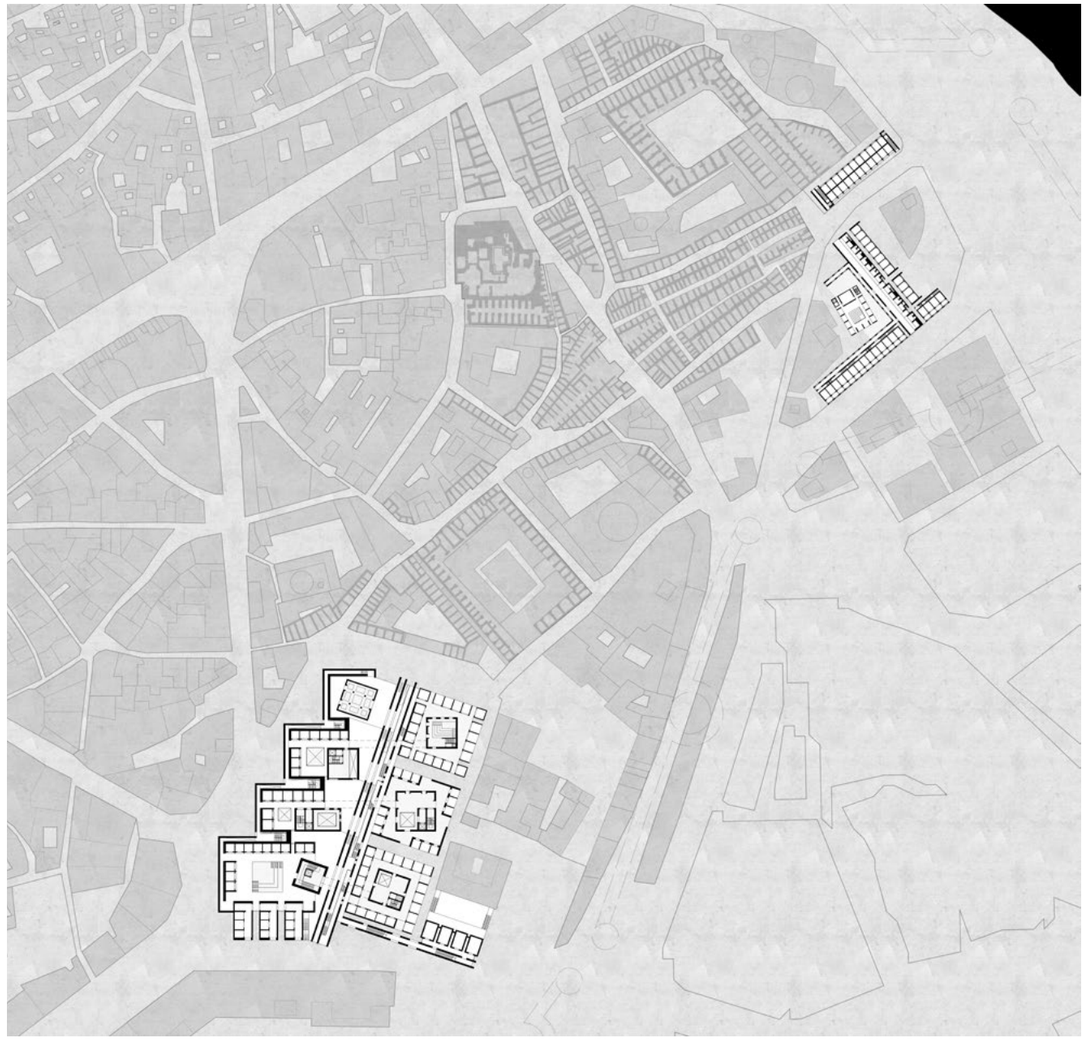


Fig.18 First and second project plan 1:500

Fig.21 First project underground floor plan1:200

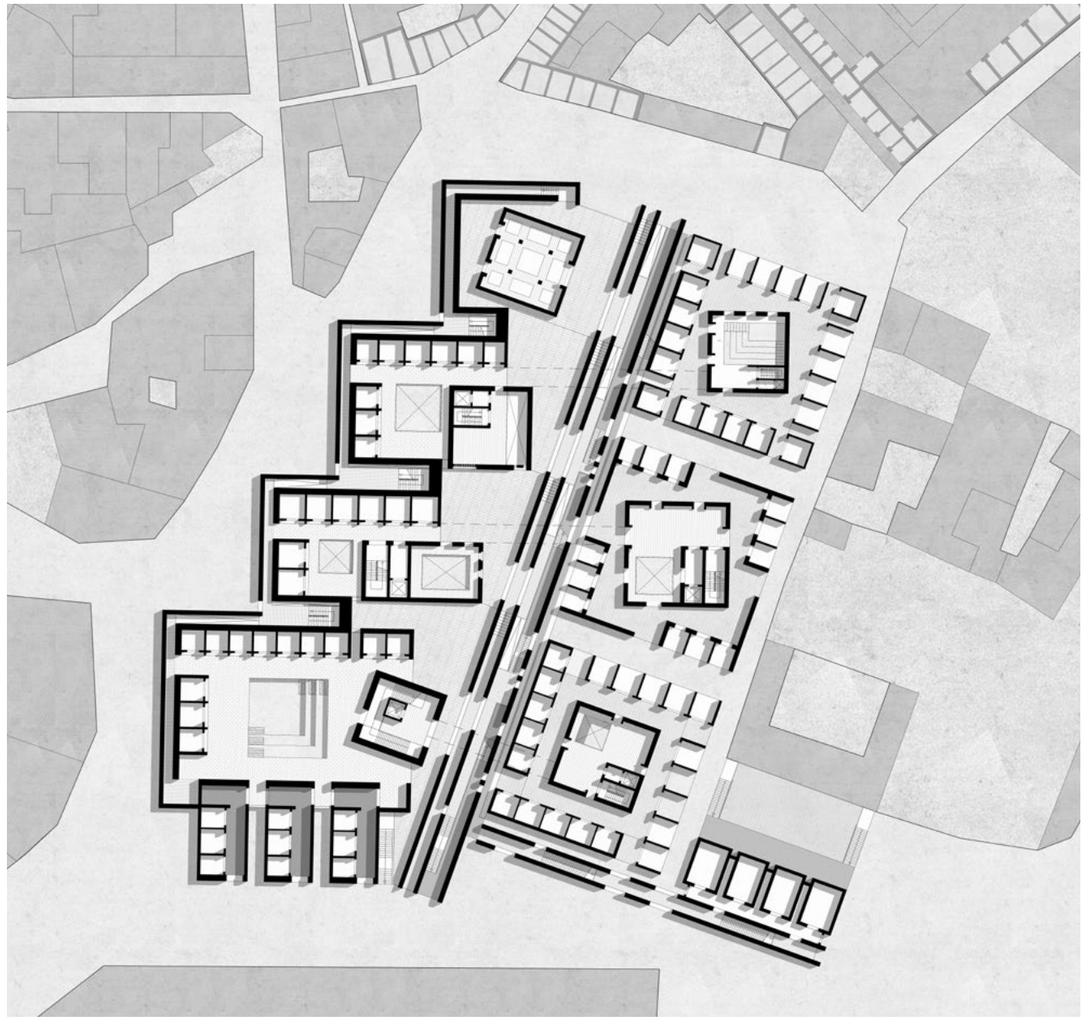


Fig.19 First project ground floor plan 1:200

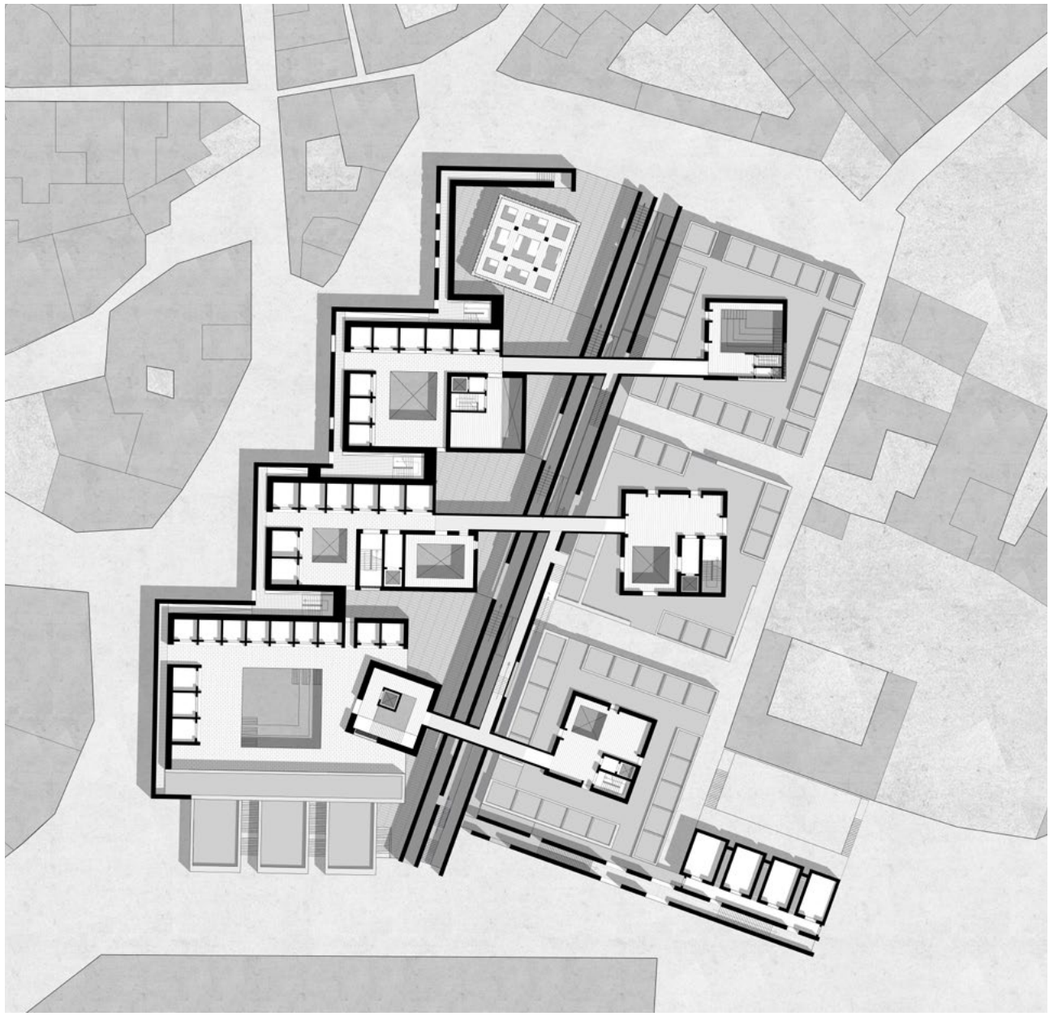


Fig.20 First project second floor plan 1:200

Fig.22 First project roof plan 1:200

Fig.23 First project axotronometric view 1:200

Fig.24 First project axotronometric section view 1:200

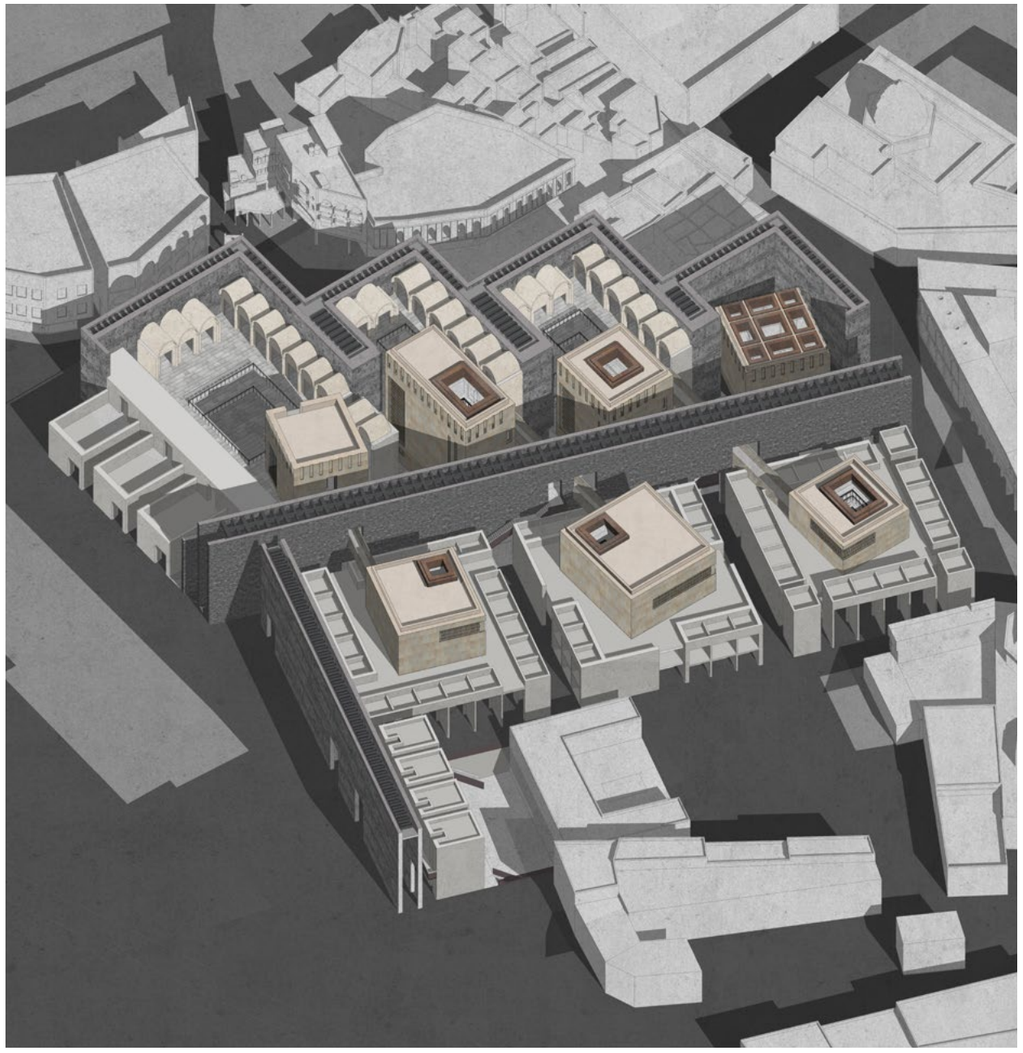


Fig.25 First project axotronometric view 1:200

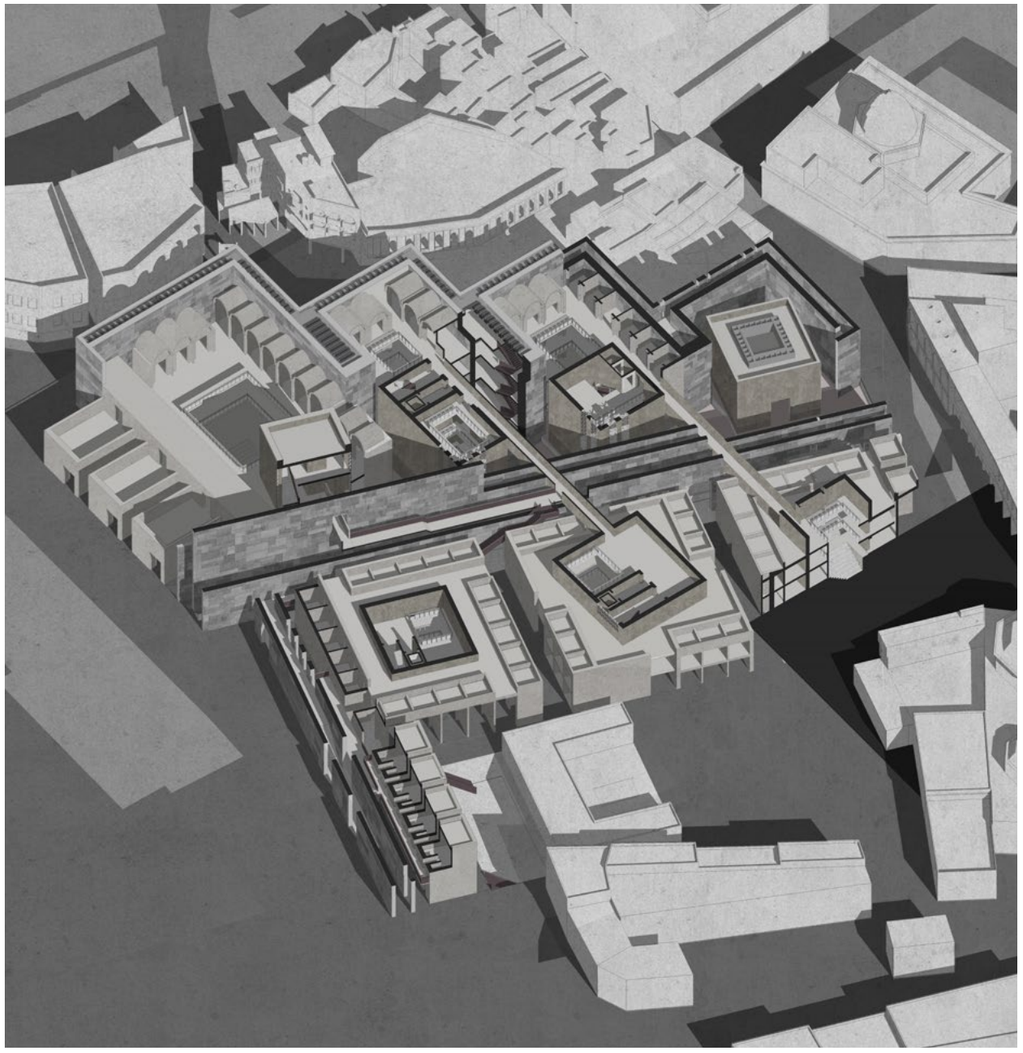
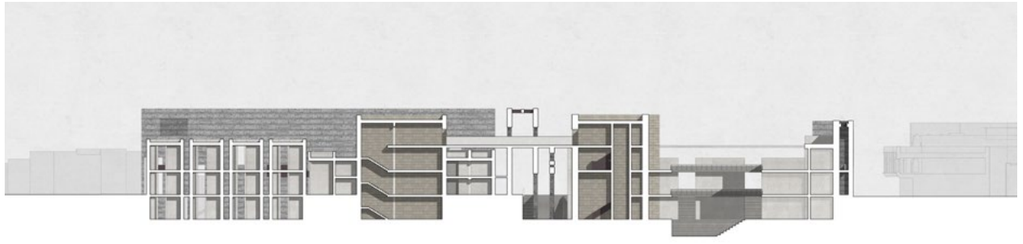
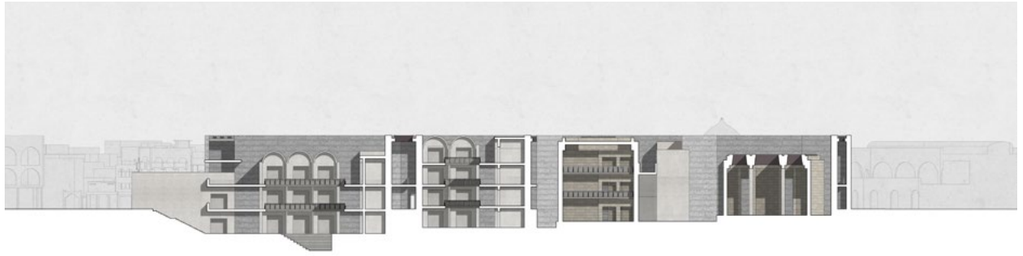
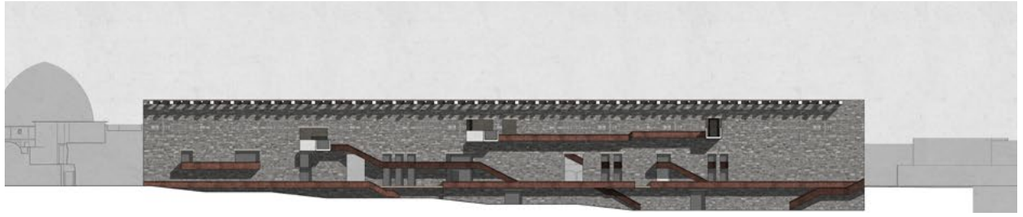


Fig.26 First project axotronometric section view 1:200







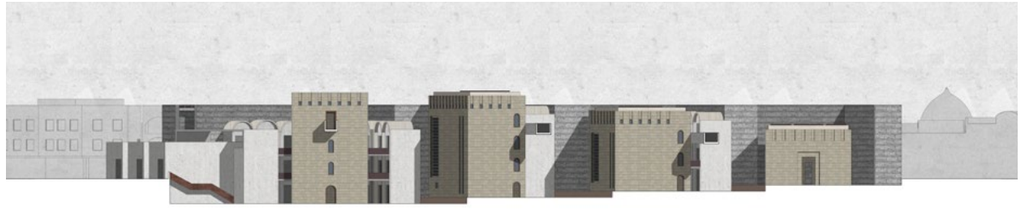


Fig.27 First project sections 1:200

Fig.29 North elevation

Fig.30 South elevation

Fig.31 East elevation

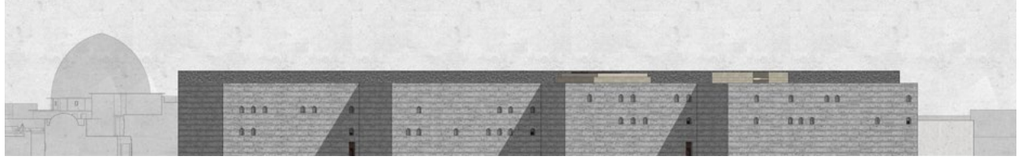


Fig.32 West elevation

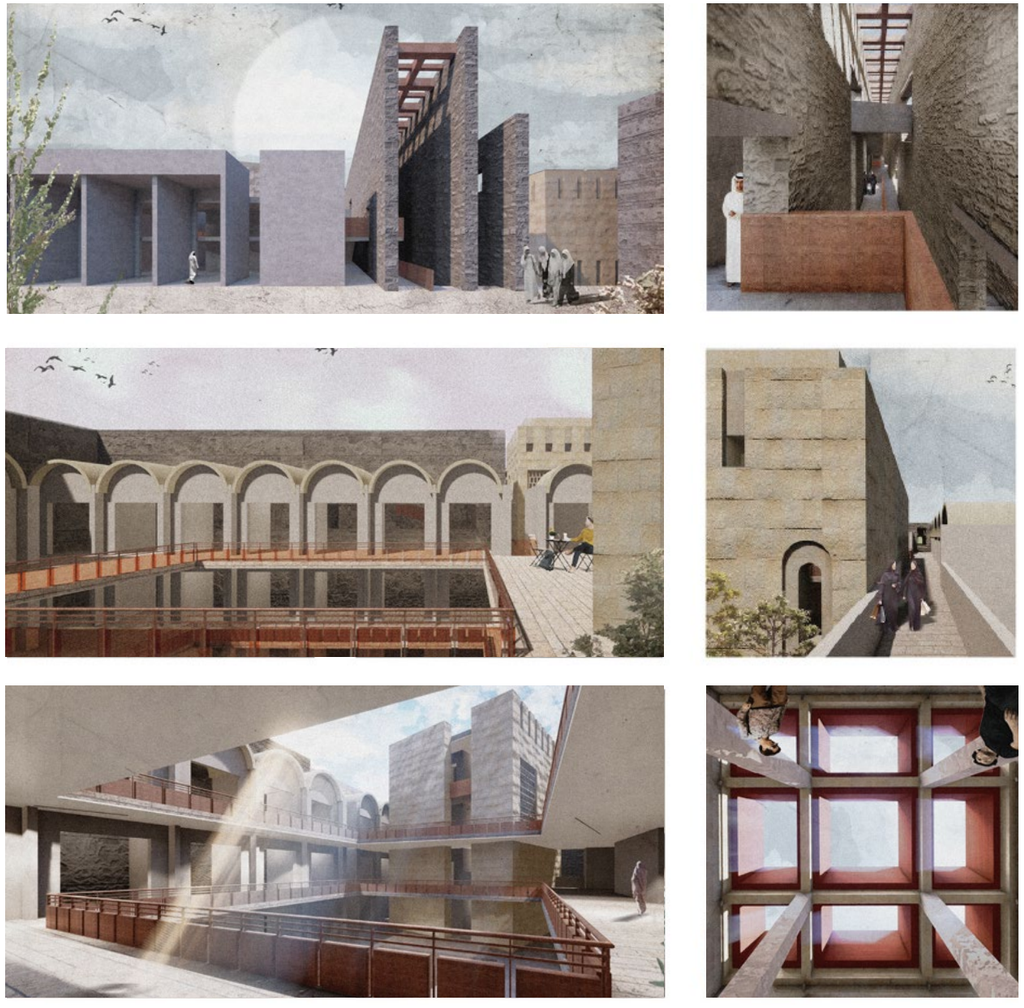


Fig.33 Views of interior and exterior

Fig.34 View showing the public space

Fig.35 View showing the collective space

Fig.36 Second project ground floor plan 1:200

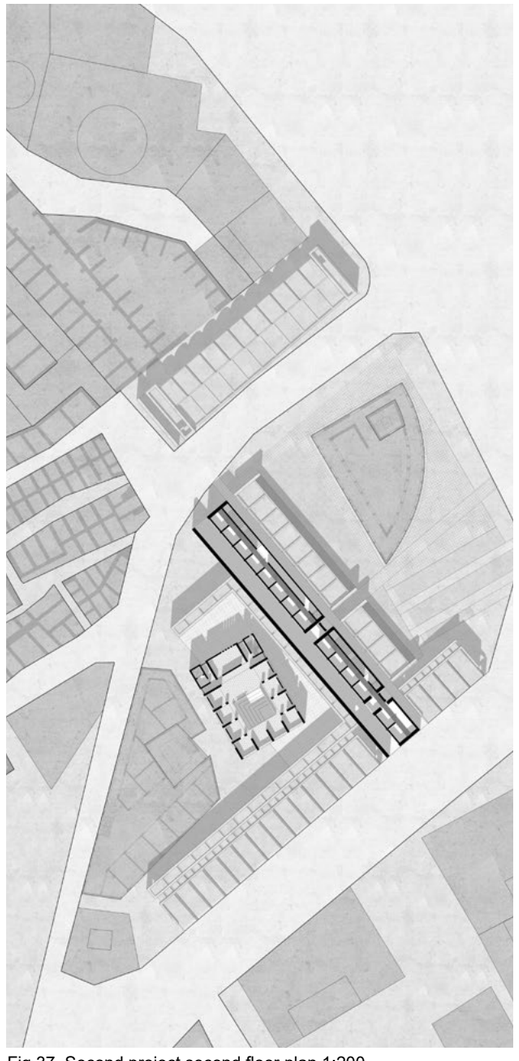


Fig.37 Second project second floor plan 1:200

Fig.38 Second project roof plan 1:200

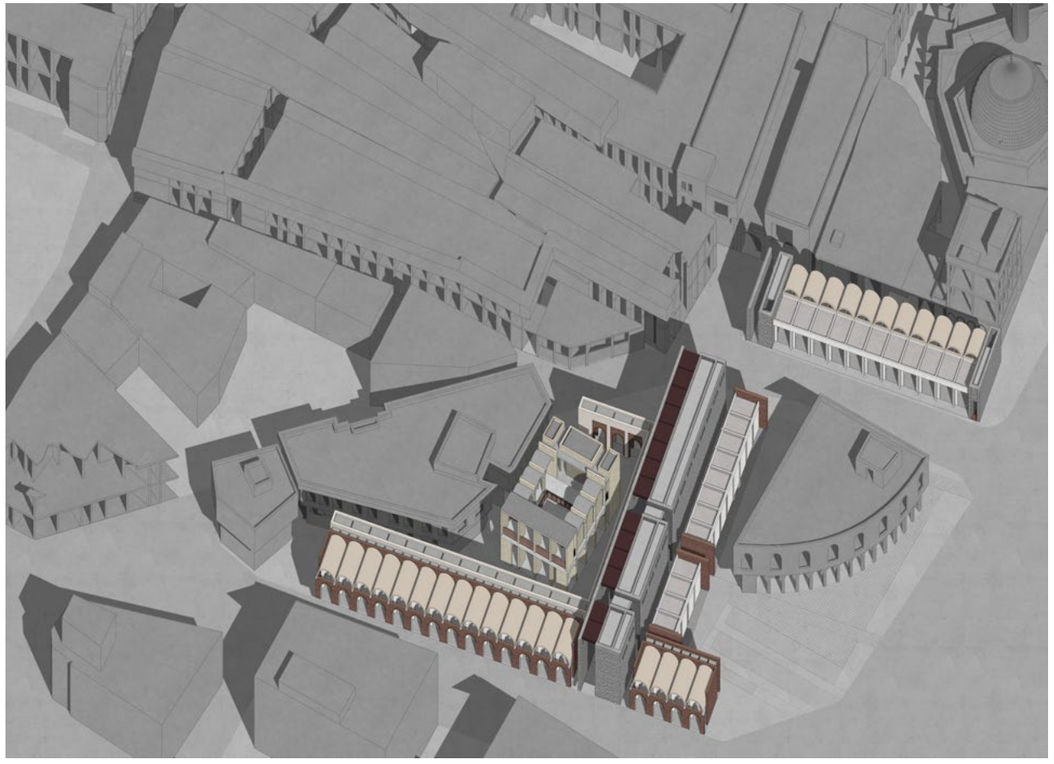


Fig.39 Second project axotronometric view 1:200

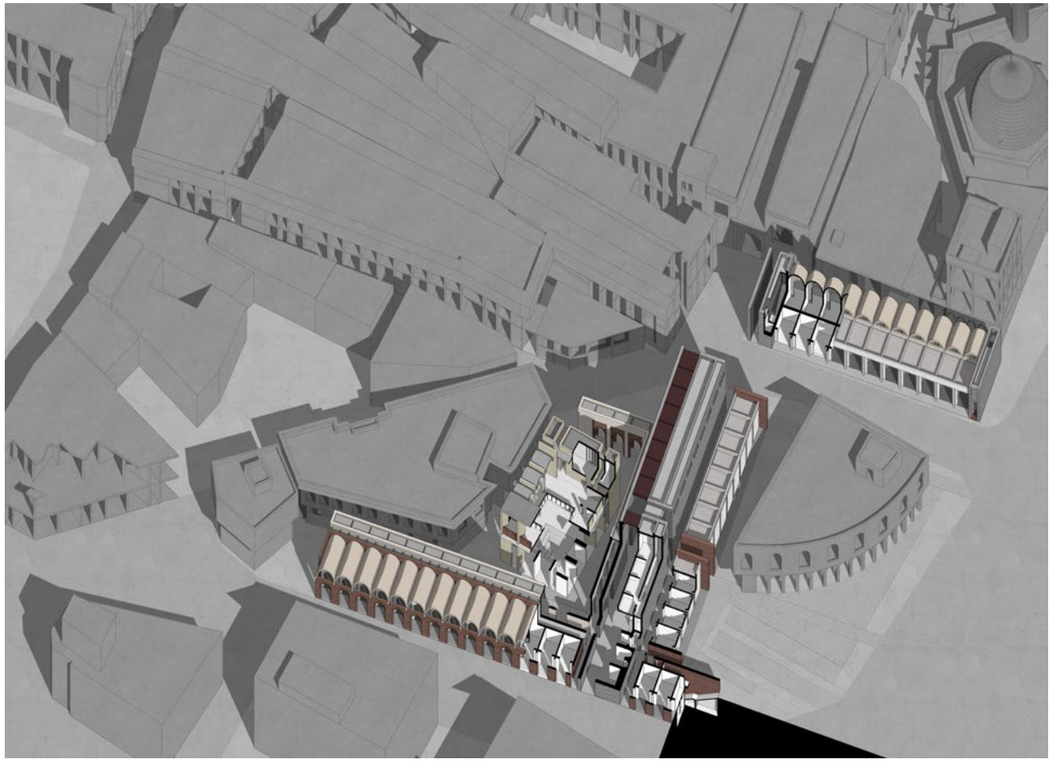


Fig.40 Second project axotronometric section view 1:200

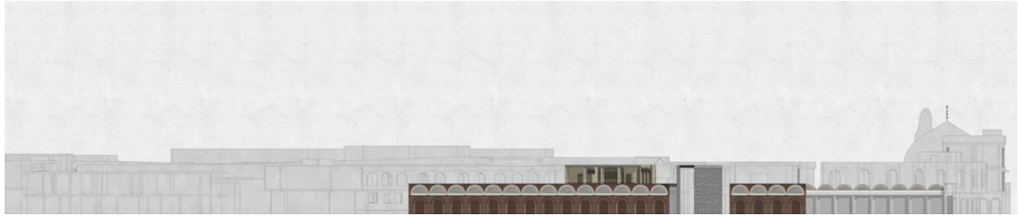


Fig.41 South elevation

Fig.42 North elevation

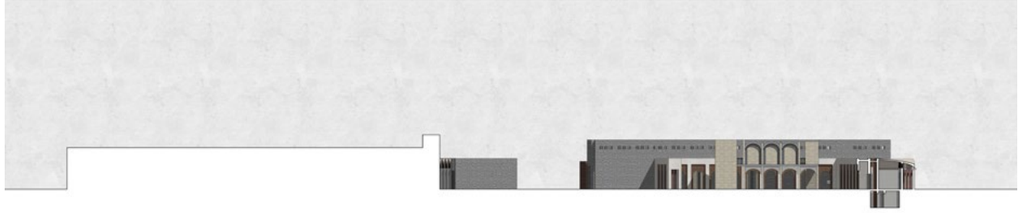
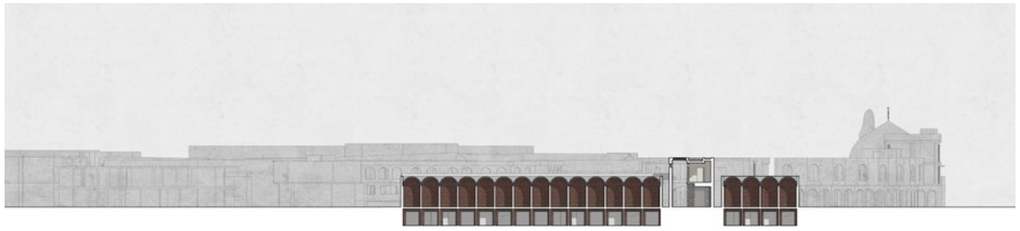
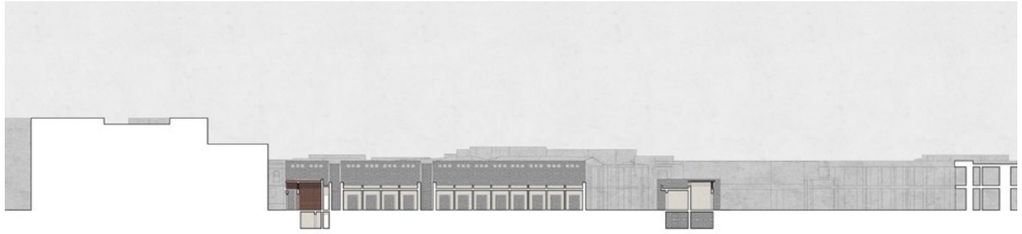


Fig.43 West elevation

Fig.44 East elevation





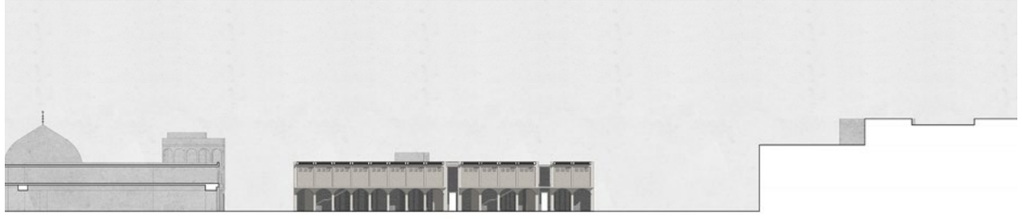


Fig.45 Sections 1:200

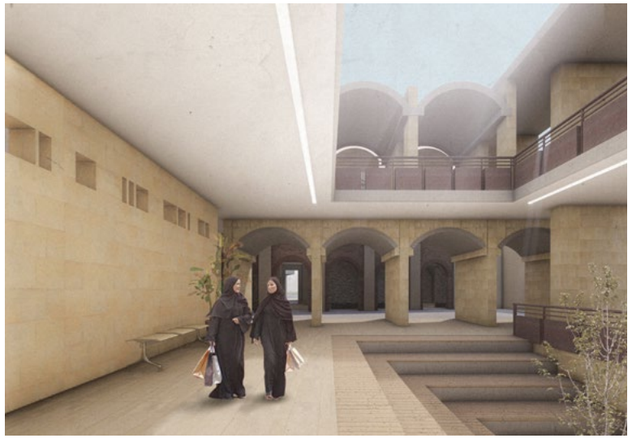


Fig.46 View showing the public space

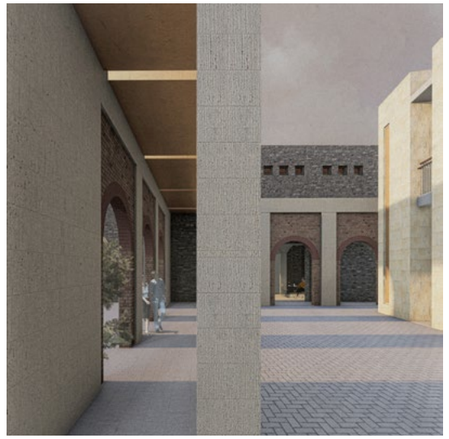


Fig.47 View showing the proches

Fig.50 Second project perspetive section 1:100

Fig.48 View showing the open space between proches and exhibitional building

Fig.49 View showing the courtyard gallery

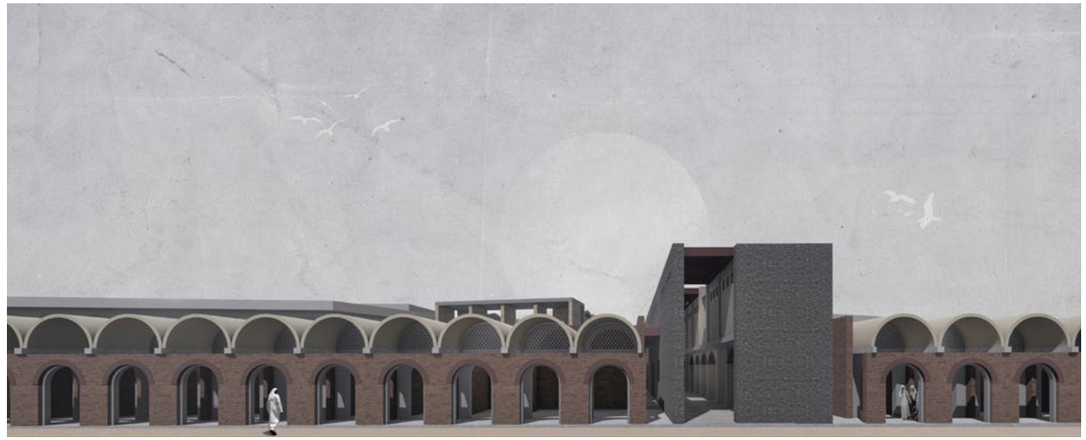
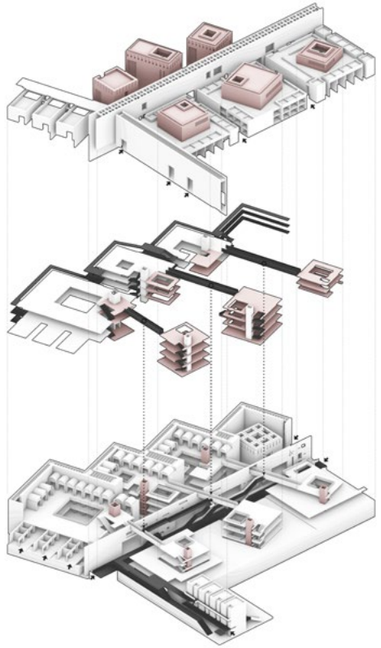


Fig.51 View showing the south front

Fig.52 View showing the central corridor functions as temporary open market

Fig.53 View showing the relatioin of porches and public space in between and exhibitional building

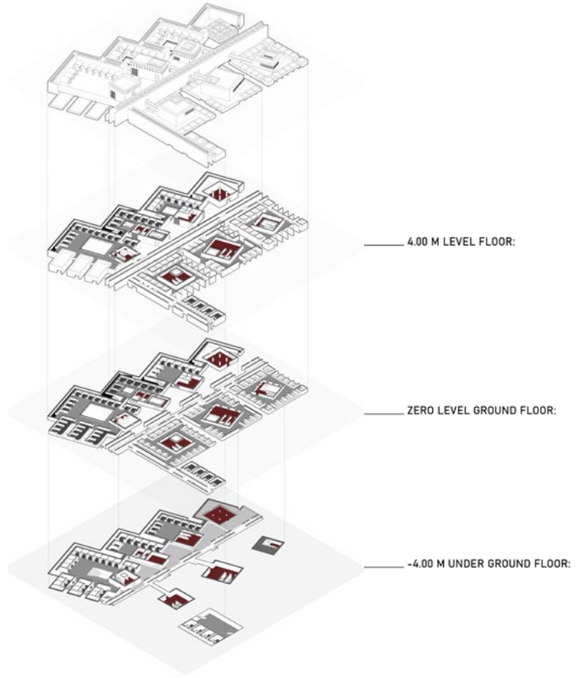
Fig.54 Circulation diagram of first project



CIRCULATION FLOW.

ELEVATORS.

Fig.555 Functional diagram of first project

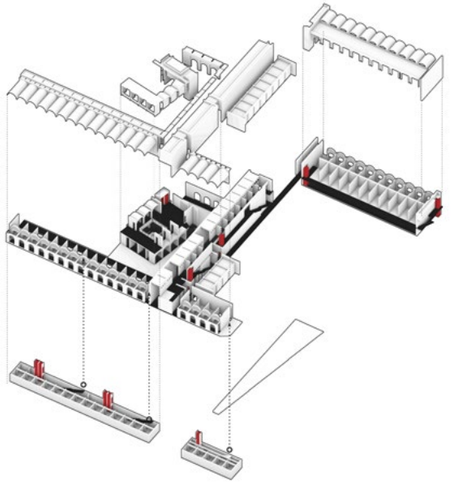


CENTRAL SERVICES SPACES.
CENTRAL DISTRIBUTION SPACES.
SHOPPING CELLS (PERMENANT).
FELIXABLE CELLS (TEMPORARY).
BOUNDRY WALLS.

CENTRAL SERVICES SPACES.
CENTRAL DISTRIBUTION SPACES.
SHOPPING CELLS (PERMENANT).
FELIXABLE CELLS (TEMPORARY).
BOUNDRY WALLS.

MARKET STREET.
CENTRAL SERVICES SPACES.
CENTRAL DISTRIBUTION SPACES.
SHOPPING CELLS.

Fig.56 Circulation diagram of second project



CIRCULATION FLOW.

ELEVATORS.

Fig.57 Circulation diagram of second project

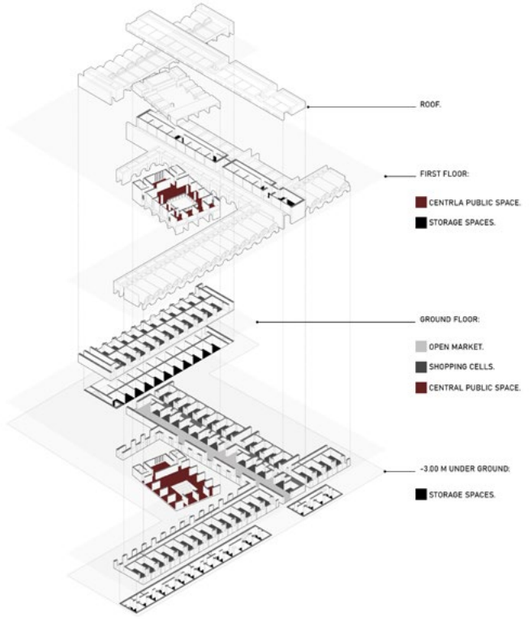
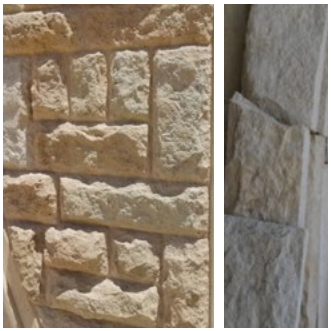


Fig.58 Material research



AL-HALLAN STONE

its a type of limestons that is extracted from mosul city.

Al-Hallan stone is used as bulding material . for the souk project its used for covering the project central spaces.

DOLOMITE STONE

its a type of a Sedimentary stones that are used in mosul city. its originally being extracted from Iraq's Kurdistan region which is near to mosul.

the dolmite stone is used as bulding material and decorative element. for the souk project its used as the main building material for the doule wall central distribution structure.

BAZALT STONE

its a type of a igneous rocks that are used as a building material in mosul . its originally being extracted from Iraq's Kurdistan region and Sulaymaniyah Governorate.

the bazalt stone is used in the souk project as covering material for the double walls surrounding the project.

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