

RECONSTRUCTING MOSUL

REWRITING THE MEMORY OF AL-NOURI MOSQUE



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01

07 Mosul Historical Evolution

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MOSUL HISTORICAL EVOLUTION

From ancient era till recent decads.



1813 B.C. 656 A.C.

The Ancient Era

1813 B.C. - 330 B.C.

The foundation of the old Assyrian empire and Nineveh.

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 its upper part in Mesopotamia, its 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 involvement 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 kingdom between India till the Mediterranean.

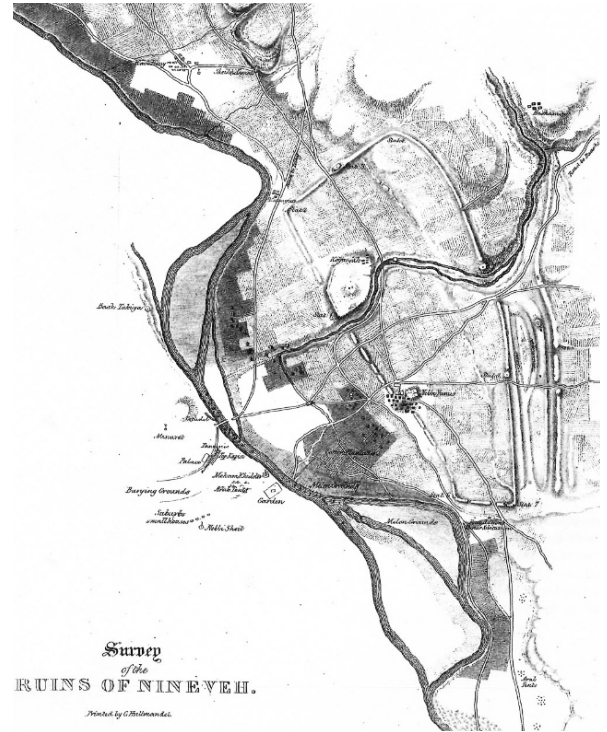


Fig. 1.01 Survey of the ruins of Nineveh vol2, Claudius J. Rich.

Ninus established the city of Nineveh¹ 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 administration until king Ashur was able to bring

¹ SULEIMAN SAIGH, Histoire De Mossoul 1923

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. 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.

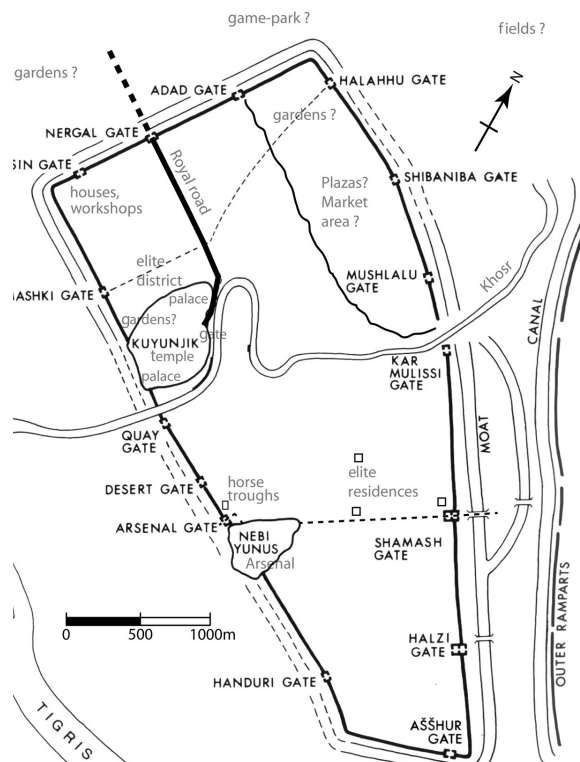


Fig. 1.02 Plan of old city of ninaveh and its gates.

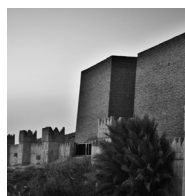


Fig. 1.03 Mashki Gate.

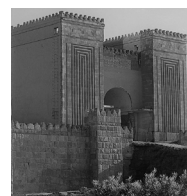


Fig. 1.04 Nergal Gate.



Fig. 1.05 Adad Gate.

2 SULEIMAN SAIGH, Histoire De Mossoul 1923.

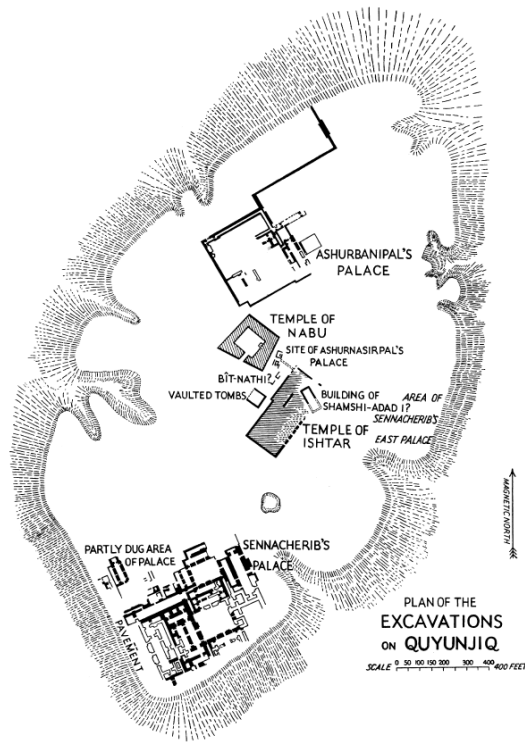


Fig. 1.06 Plan of the excavations on Quyunjiq.



Fig. 1.07 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 rivers³ (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 alabaster⁴, 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 completed⁵.

3 MARCO IAMONI, The Prehistoric Roots Of Nineveh 2017.

4 LUCAS PETIT, BONACOSSO DANIELE, Nineveh, The Great City. Symbol Of Beauty And Power 2021.

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



Fig. 1.08 Imaginary view for Nineveh by Austen Henry Layard.

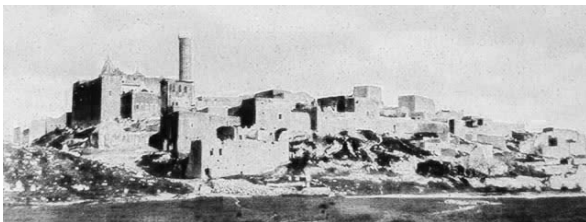


Fig. 1.09 Al-nabi Yunus mosque.

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 Ashur-rabi 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 library⁶.

In relation to Mosul, the Arameans historians revealed that it has 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 River referring to the Assyrian fortress, in addition

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

to a group of forts built by the Assyrians to block the attacks of the enemies from the western side⁷. 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.

Greek and Persian Empire

330 B.C. - 636 A.C.

The old settlement of el mosul.

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 demolished⁸. Among those ancient cities that were surrounding Mosul, the city of Nimrud which is an ancient Assyrian city located south of Mosul by 30 kilometres, north of the point that the

7 SULEIMAN SAIGH, *Histoire De Mossoul* 1923

8 SULEIMAN SAIGH, *Histoire De Mossoul* 1923.

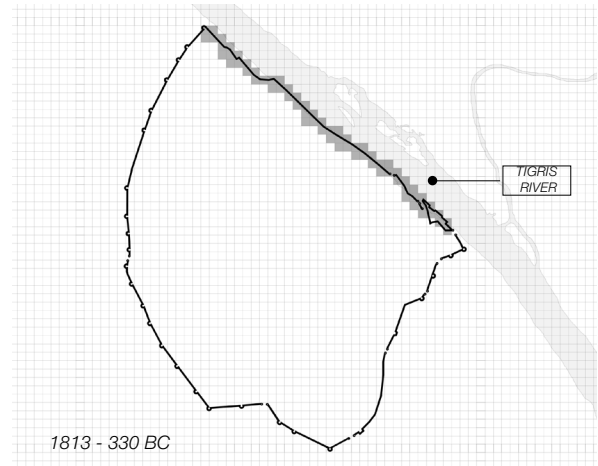


Fig. 1.10 The position of the Assyrian fortress for defending Nineveh.

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 Empire⁹.

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 king Ortban III between 18-41 A.C. as a part of the

9 MARTIJN HOUTSMA, *First Encyclopaedia Of Islam* 1993.

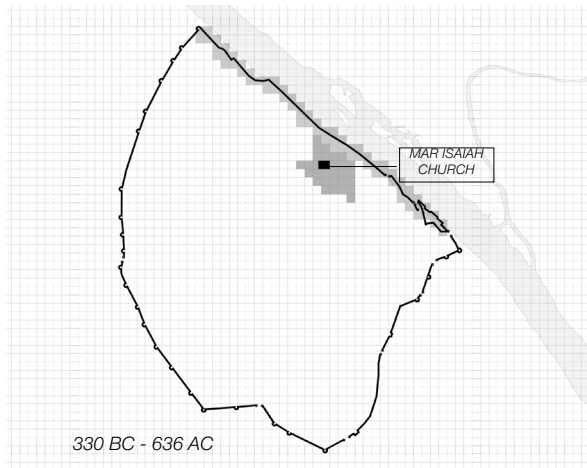


Fig. 1. 11 The position of first Cristian settlements at Mosul.

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 kingdom¹⁰. 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. The Sasanian Persians seized power from the

10 SULEIMAN SAIGH, Histoire De Mossoul 1923.

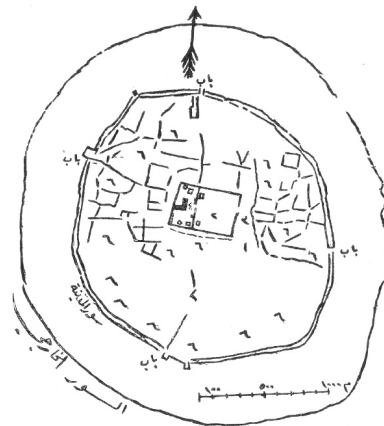


Fig. 1. 12 Plan for Al Hatra city where Arabs used to stay before moving to Mosul.

Archaic 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 beginning of the 2nd century after birth¹¹, 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.

The Sasanian rule was full persecution, killing, and

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

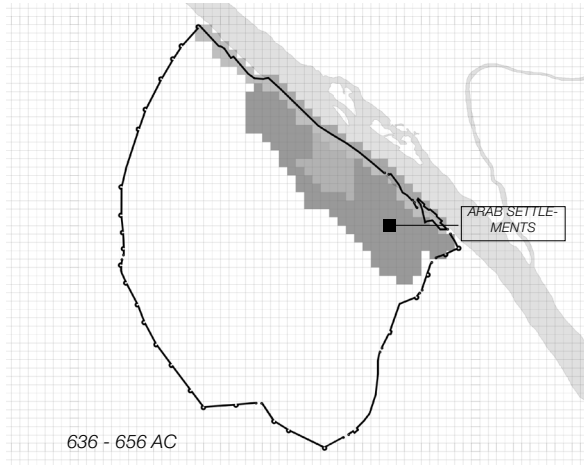


Fig. 1. 13 The position of Arabs at Mosul alongside the tigris

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 Church¹² (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

12 Edmund Bosworth, *Historic Cities Of The Islamic World* 2008.



Fig. 1. 14 Archeological remaining from hatra city.

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 el 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 reign¹³. The Arabs used to live in the city of Al-Hirah, which

13 SULEIMAN SAIGH, *Histoire De Mossoul* 1923.

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.

656 A.C. 1918 A.C.

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. ¹⁴

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

14 Novacek K, 2017

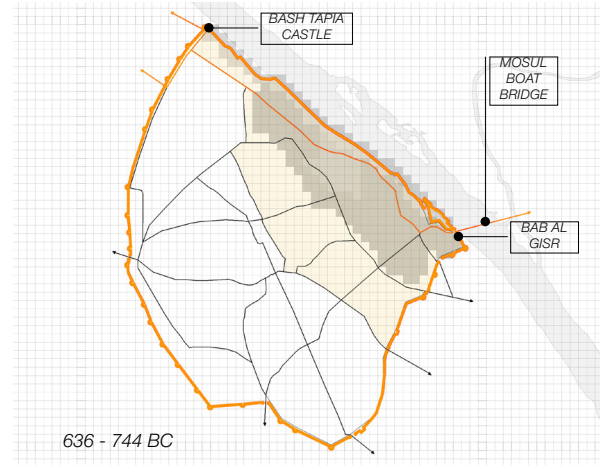


Fig. 1. 15 The structure of mosul at the ommayah period.



Fig. 1. 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."

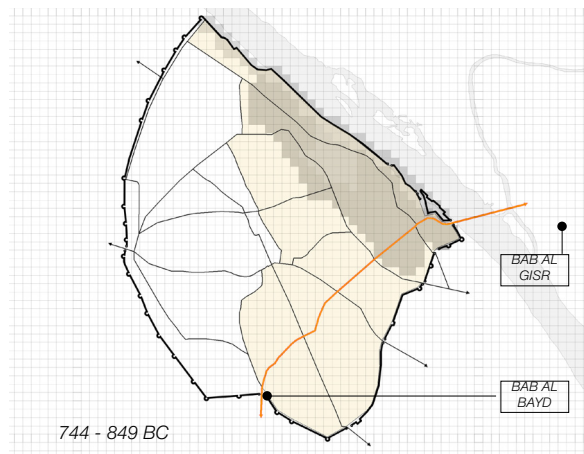


Fig. 1. 17 The structure of mosul at the ABBASID period.

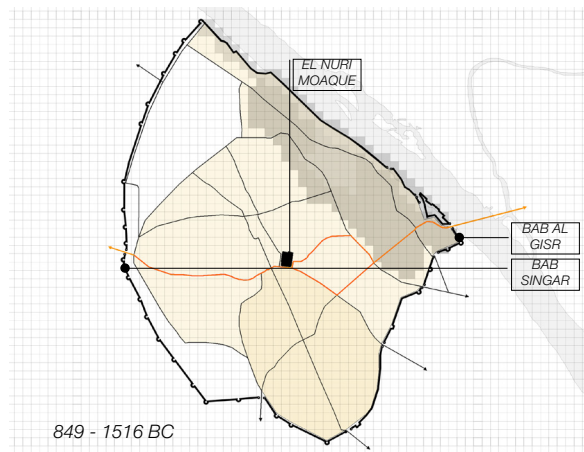


Fig. 1. 18 The structure of mosul at the ZENGID period.

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 madrasa 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 congregational mosques, 36 souqs, 28 schools, and 18 dar-hadiths - madrasas¹⁵, 8 churches, and an astonishing number of 210 hammams¹⁶ Mosul was conquered and sacked by the Mongols in the second half of the 13th century and was later ruled by the

15 Kemp P, 1979

16 Fethi I, 1977



Fig. 1. 19 The Al_Nouri Mosque.



Fig. 1. 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 inside them. The north of the city was deserted, the only inhabited neighborhood being those around Al Nouri and east of the river.

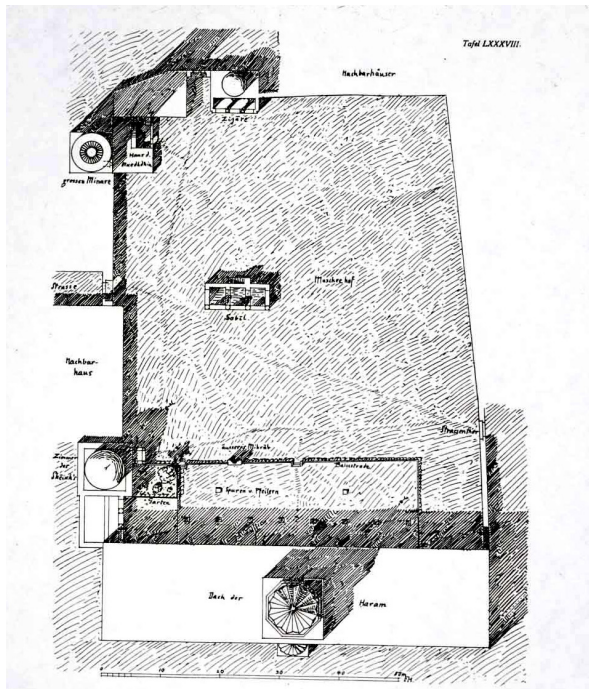


Fig. 1. 21 The Al-Nouri Mosque.

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"¹⁷. 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.

The Sarai appears to have moved within the Islamic city over the centuries. During Ottoman

¹⁷ Kemp P, 1979

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.

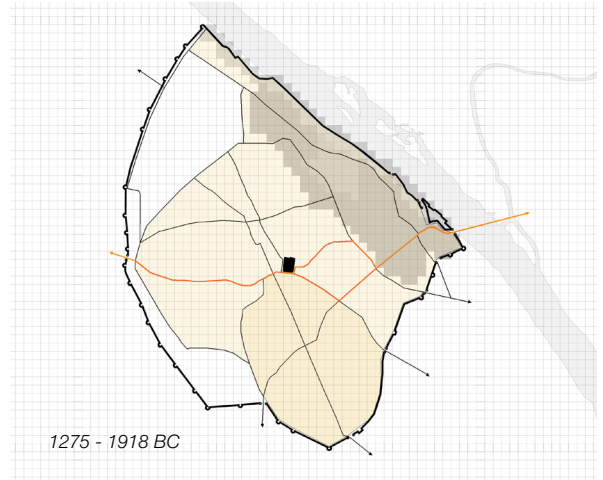


Fig. 1. 22 Mosul borders at the OTTOMAN period.



Fig. 1. 23 Ramparts of Mosul.

1918 A.C. - PRESENT

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

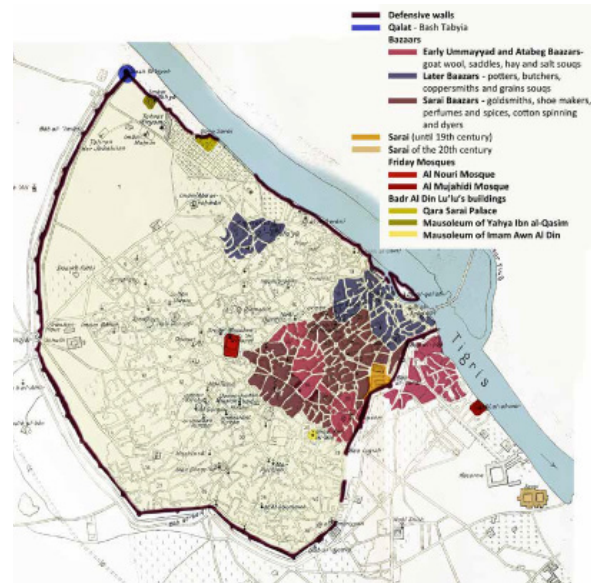


Fig. 1. 24 The Urban structure of Mosul at the OTTOMAN pe-

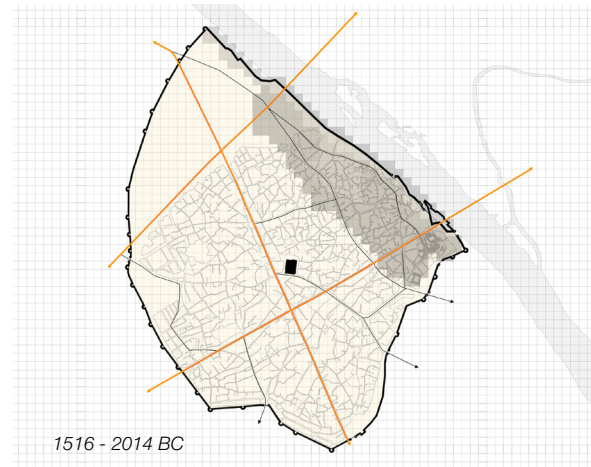


Fig. 1. 25 Contemporary structure of Mosul.

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.”¹⁸ 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 Tigris, 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.

18 Pini D, 2019



Fig. 1. 26 Drone View of Al Nouri Complex after its destruction



Fig. 1. 27 Mosul from the air.

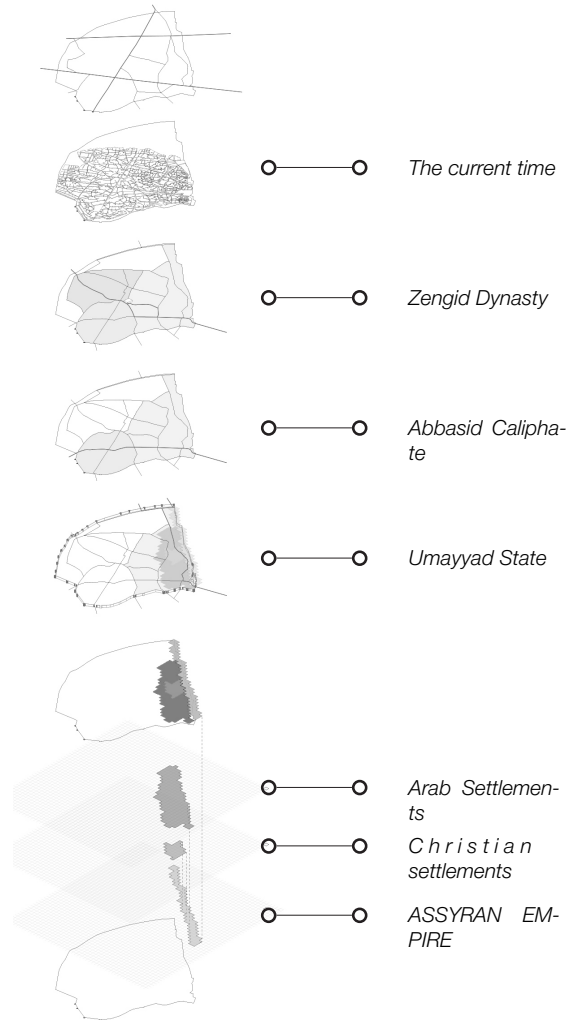


Fig. 1. 28

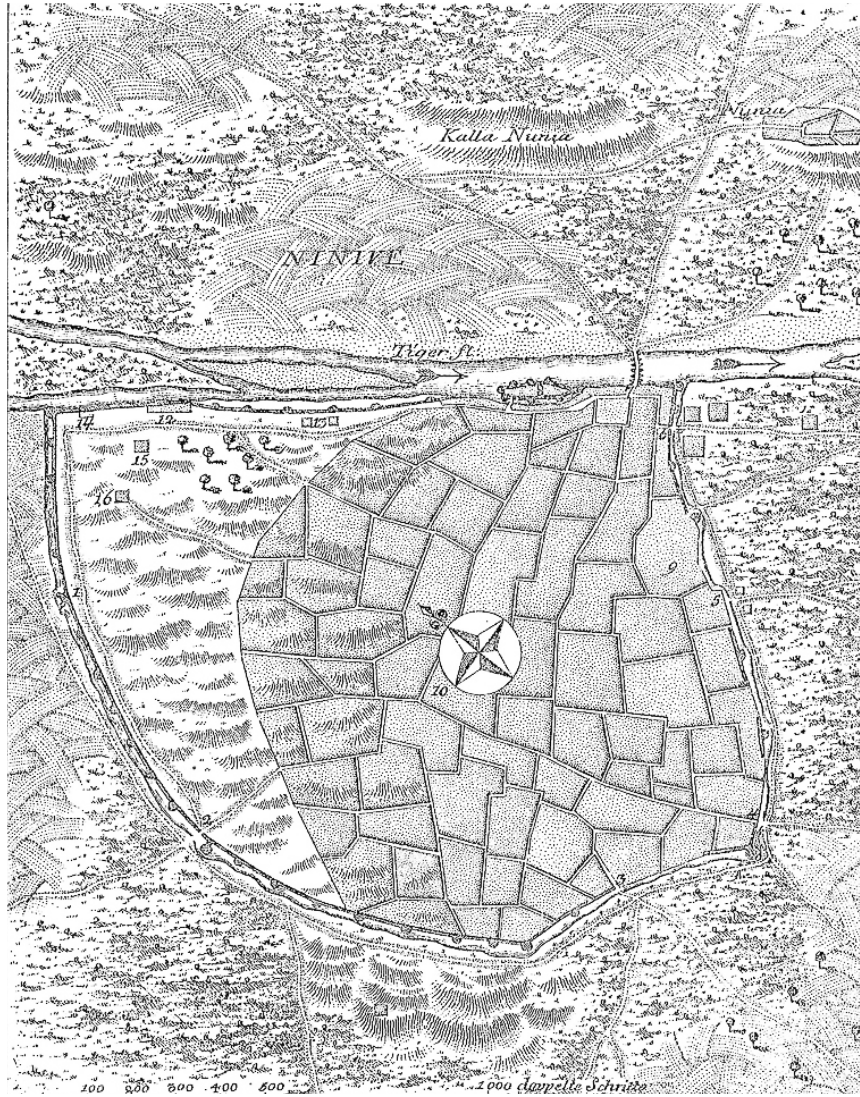


Fig. 1. 29 Mosul map in 1778.

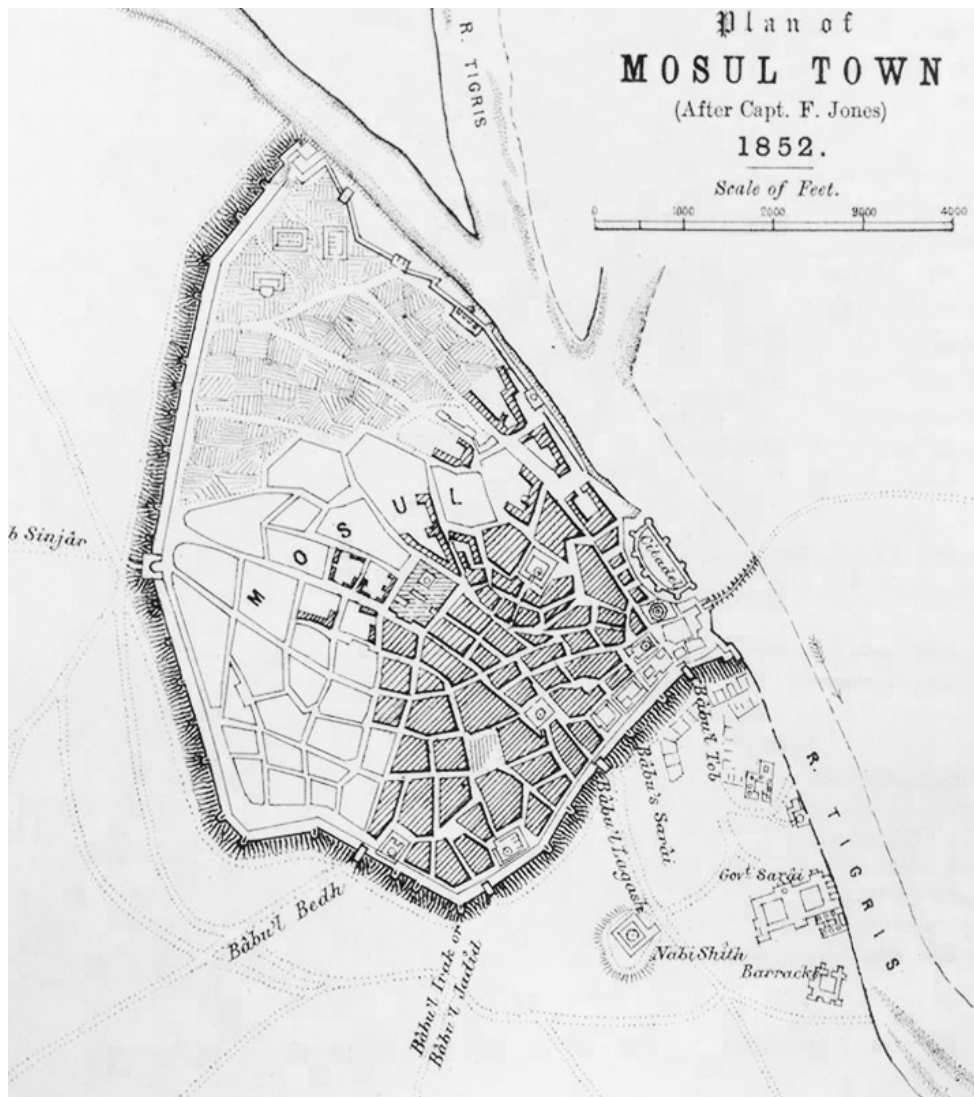


Fig. 1. 30 Mosul map in 1852.

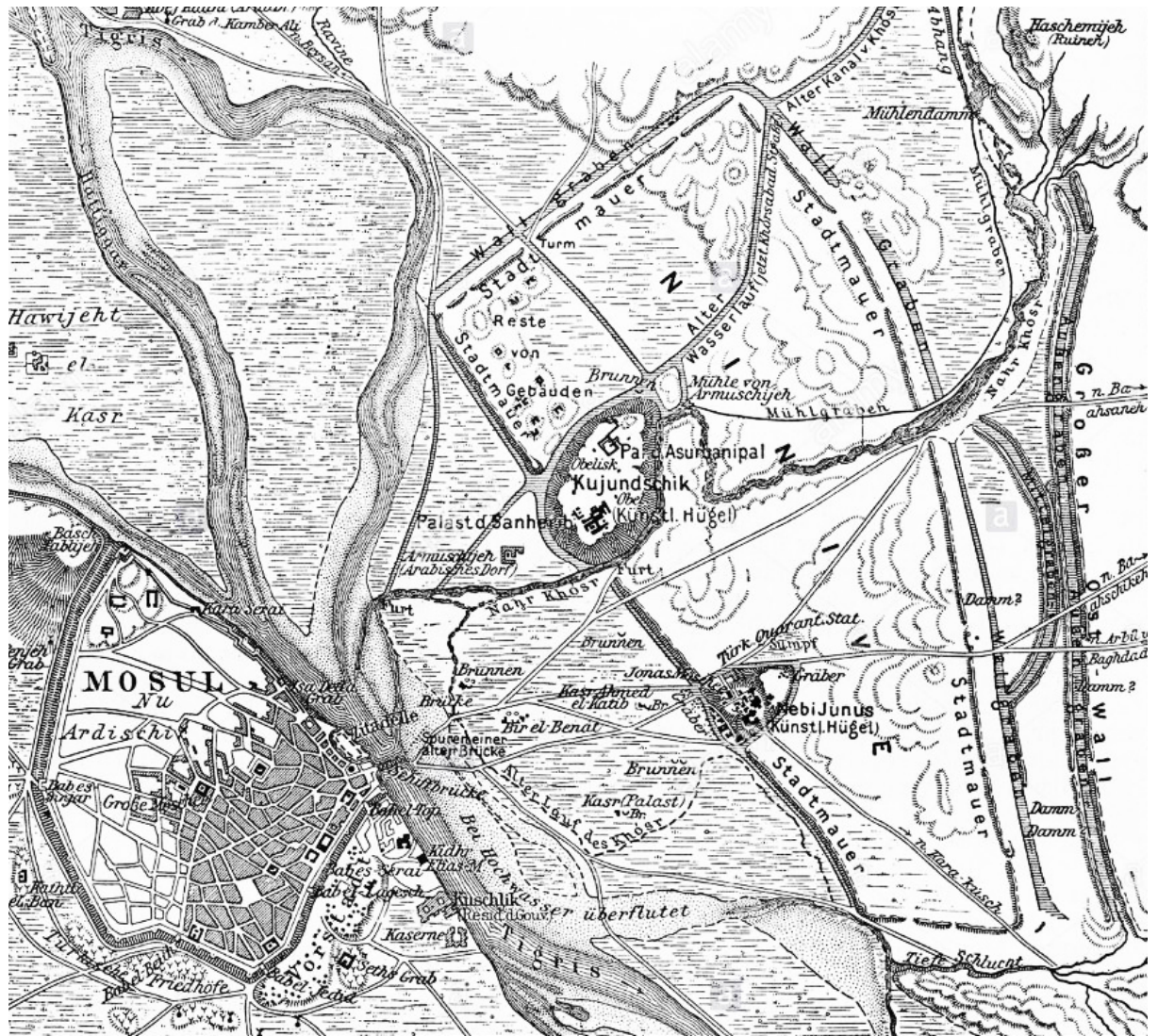


Fig. 1. 31 Mosul map in 1900.

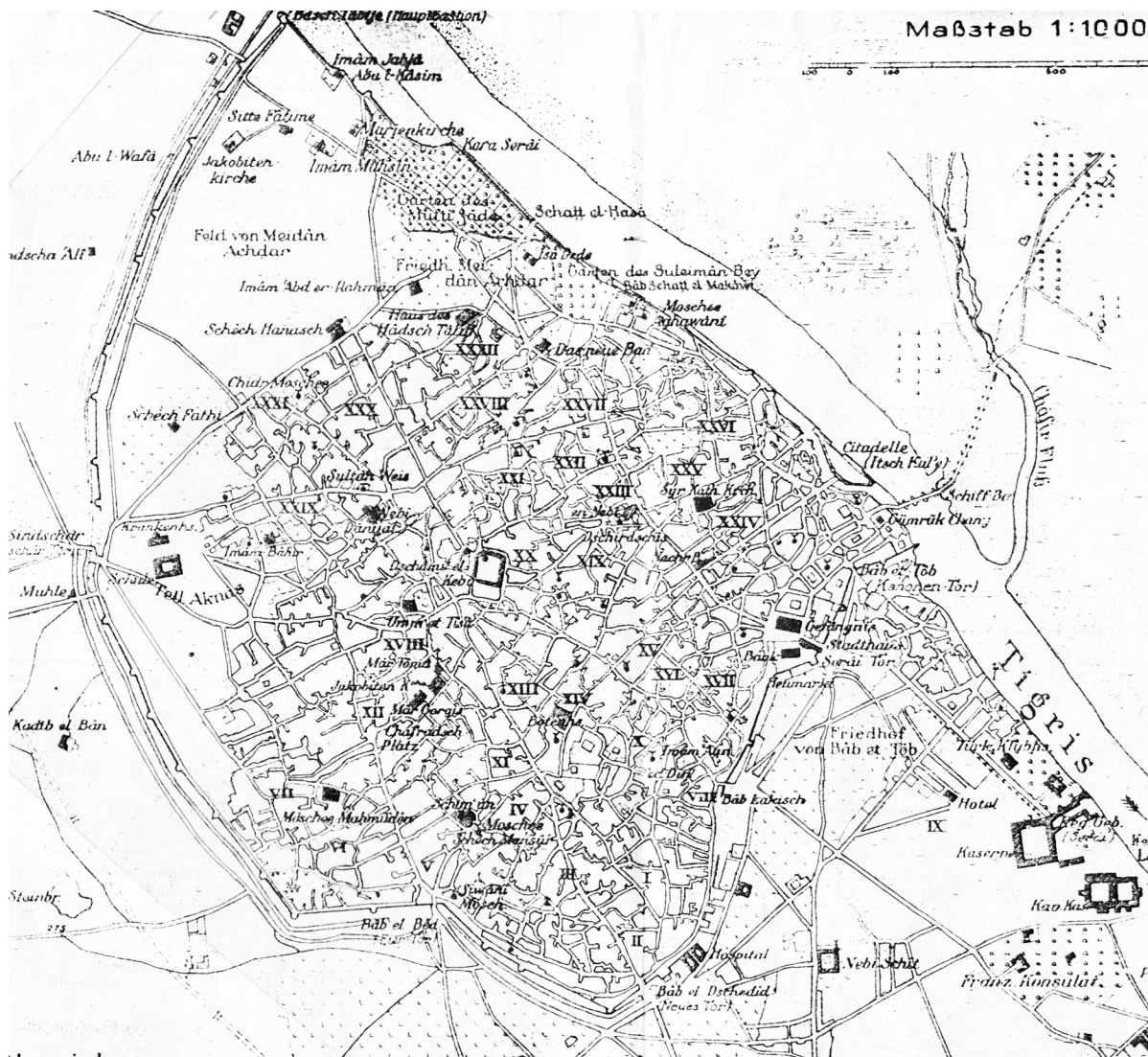


Fig. 1. 32 Mosul map in 1907.



Fig. 1. 33 Mosul map in 1919.

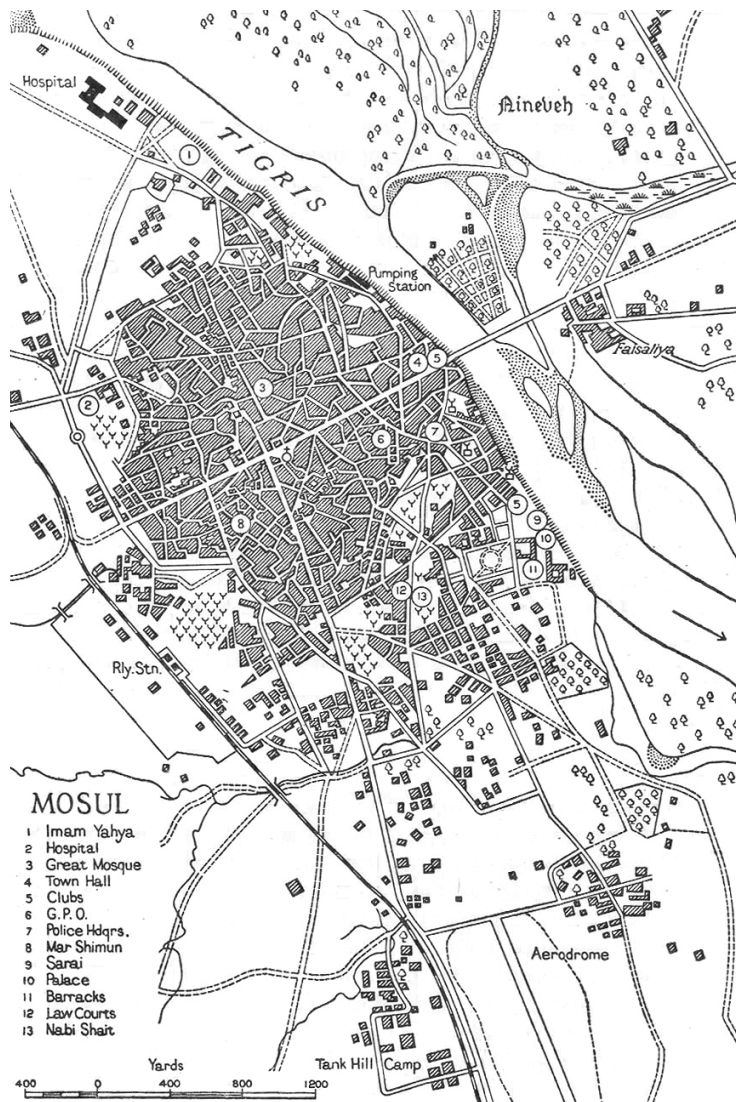


Fig. 1. 34 Mosul map in 1944.

02

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Territorial Analysis:

Geographic Profiles of Iraq, Nineveh and Mosul



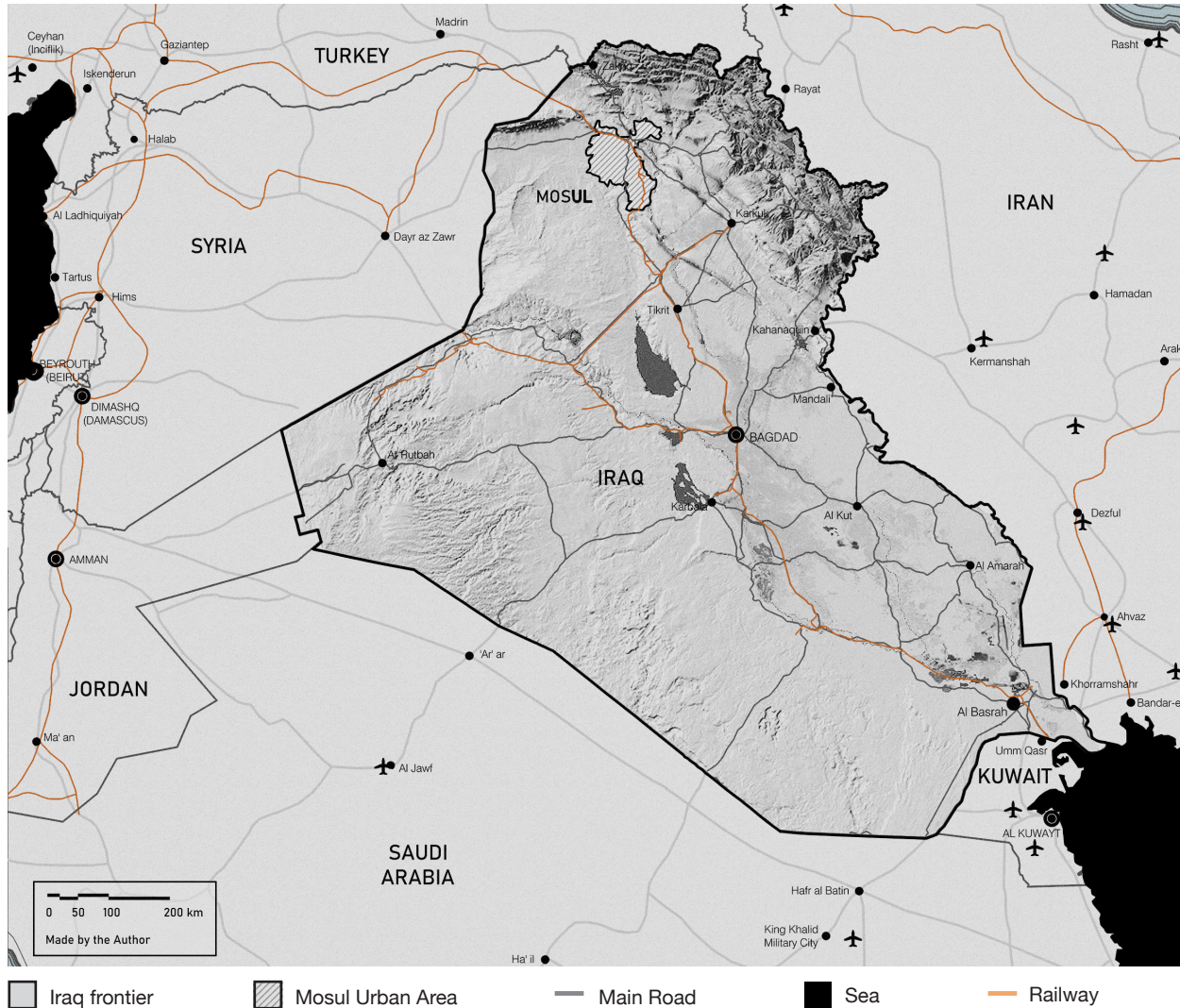


Fig. 2.01 Geopolitical map of Iraq and main infrastructure system.

Territory

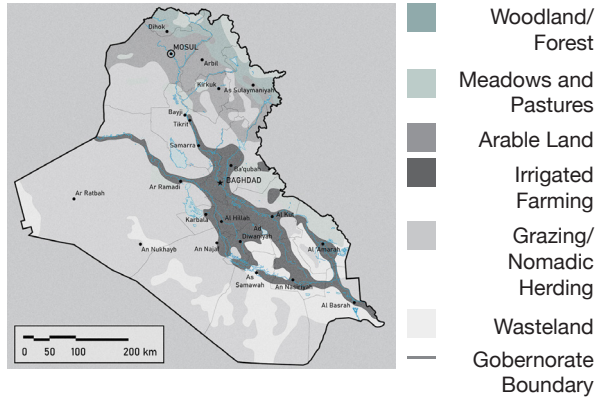


Fig. 2.02 Iraq land use map.

Iraq Country Profile

Iraq is one of the easternmost countries of the Arab world. The country is 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 27). 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.

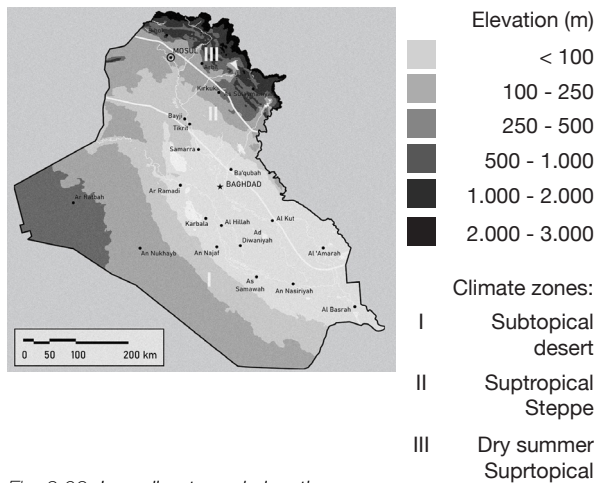


Fig. 2.03 Iraq climate and elevation map.

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' (Fig 28).

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 29). 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 30).

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 31).

Nineveh Governorate Profile

Located in northern Iraq, Nineveh is the third

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

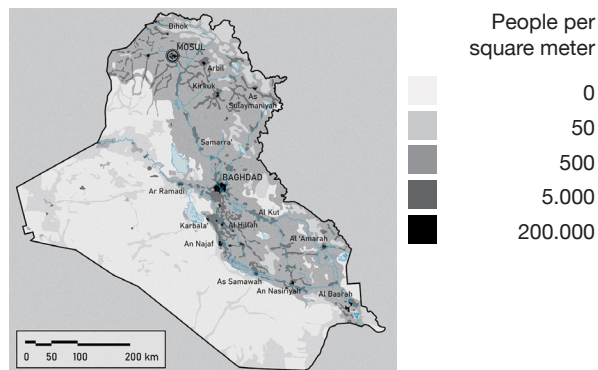


Fig. 2.04 Iraq demographic density and distribution map.

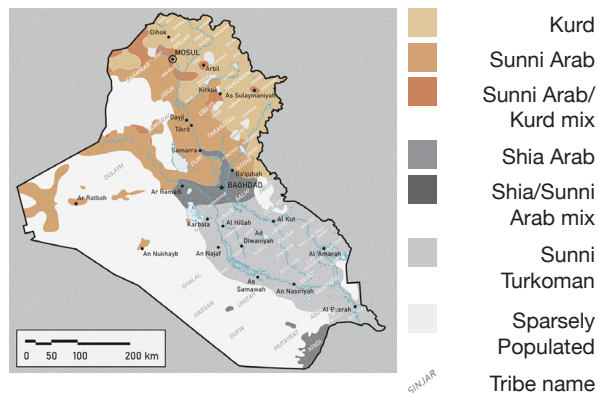


Fig. 2.05 Iraq ethnoreligious groups and major tribes map.

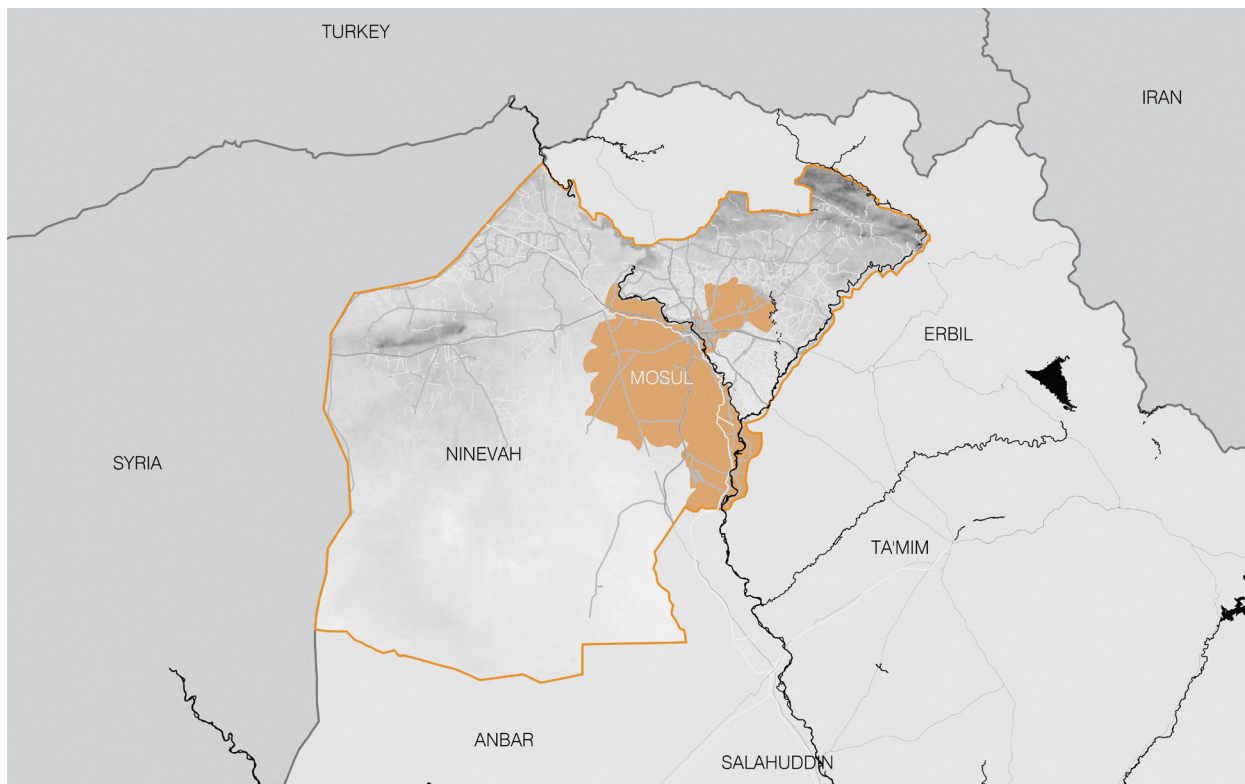


Fig. 2.06 Geopolitical map of Nineveh governorate.

largest and second most populated governorate, home to the ancient Assyrian city of Nineveh (Fig 32). 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 regions².

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

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.

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 Baghdad, the highway 2 to Irbil 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 Bashiqaq 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.

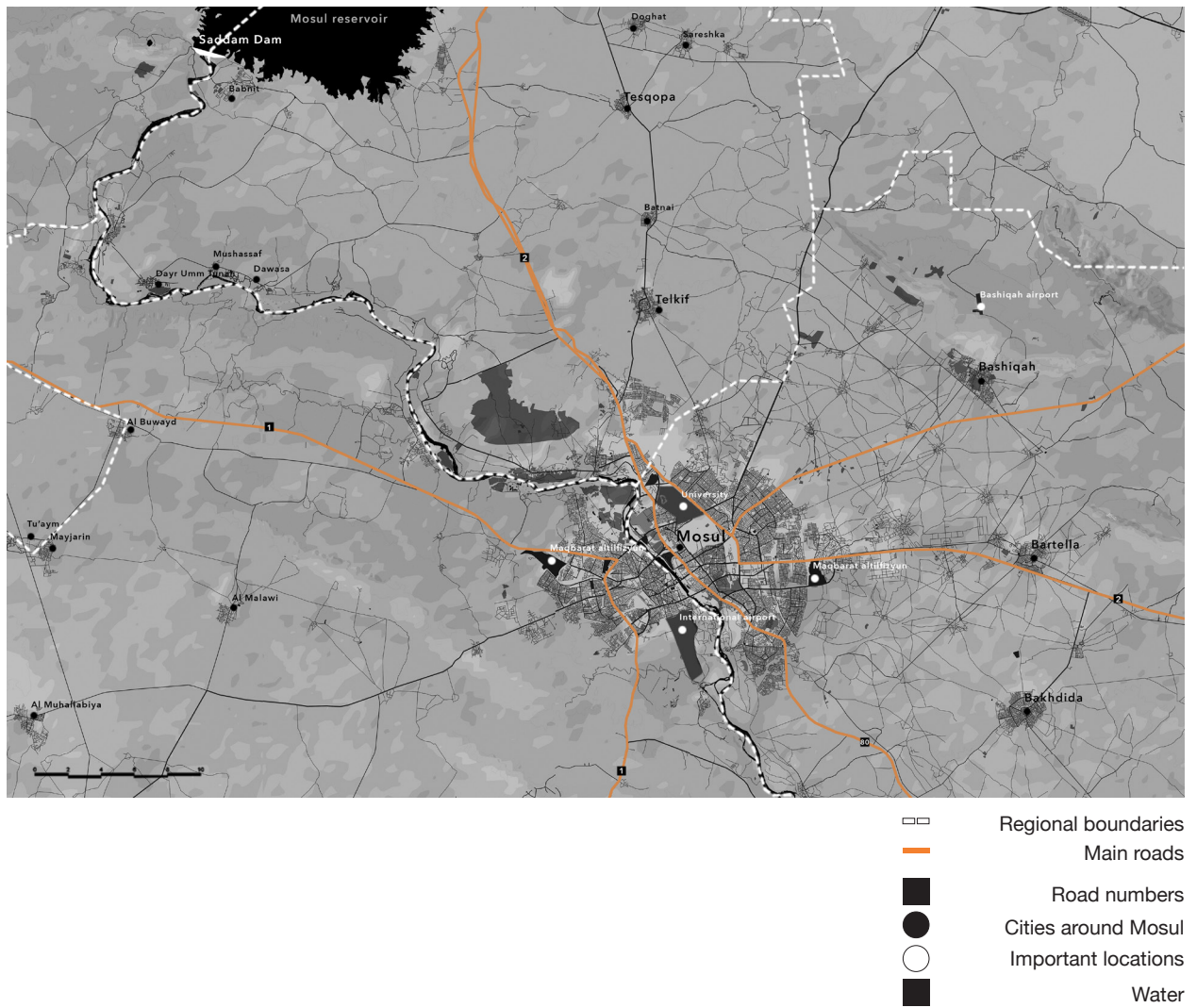


Fig. 2.07 Map of the Mosul region, the reservoir created by the dam occupies a large area upstream of the city.

The Tigris River



Fig. 2.08 Iraq. Mosul. Mosul bazaars and river scenes on the Tigris, *The Tigris*, 1932, Wash day, women washing clothes in the 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.

The Tigris Uses

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



Fig. 2.09 Washing wool on the banks of the Tigris River in Mosul, Iraq, 1932 the Tigris banks women activities.

is built at proximity of very fertile lands, in the precise area that does not risk to be submerged by the water (see fig. XX). 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 resource has become 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 role especially for women. The water in Mosul was considered as proper for domestic 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



Fig. 2.10 The Mosul dam, 2011, Completed in 1984, the dam suffers from structural problems that caused the U.S. Army Corps of Engineers to once call it 'the most dangerous dam in the world,' an accusation rejected by Iraqi authorities.

The Saddam dam

Because of its uneven debit, the Tigris is dammed in multiples locations in Turkey and in Iraq. Two of the four dams located in Iraq are situated in the Mosul region. The first one, the Saddam dam, is the largest dam in Iraq. Built in 1981 and located upstream of the city of Mosul, the structure has a full capacity of 11.1 cubic kilometers and produces electricity for 1.7 millions of inhabitants the region. For this reason, the infrastructure was a strategic element during the war with ISIL. In addition to the energetic problematics, the failure of the bam would represent a lethal danger for 1.5 millions people. The wave would reach 54 m high and reach Bagdad within hours. The structure is described as very weak by multiple experts that try to raise the awarness and

the support of local politics about this immediate danger. The sedimentation of the bottom of the dam is provoking a increasing pressure. Different works of consolidation have been realized but the threat of a failure is still existing.

The dam is stabilizing the river and acheives a flood cycle that is more constant, allowing a more permanent occupation of the land and a decreased risk of innondations. However, the Mosul dam gained the reputation of «the most dangerous dam in the world» and its potential collapse is considered as dangerous as «a nuclear bomb».⁴

⁴ Barbare Bibbo, 2016, Mosul Dam collapse 'will be worse than a nuclear bomb', Aljazeera

A Diverse Agriculture

The Tigris is a powerful 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 transformed 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».⁵ Even is the war, and more specifically the use of chiminal 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.»⁵

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»⁵ and 65 per cent of its total area dedicated to fields and agriculture.

⁵ Hassan Ali Ahmed, 2020, Mosul sowing seeds post-Islamic State, Al Monitor



Fig. 2.11 The Tigris banks, 2020, the Tigris banks close to Mosul with the fields and green areas.



Fig. 2.12 The Tigris banks, 2020, the Tigris banks close to Mosul with the swamps.



Fig. 2.13 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 obvious looking at the map (see fig. XX) 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 Bashiqaq 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.»⁶

The Damages of the War

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

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

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 activities. «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.»⁷

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

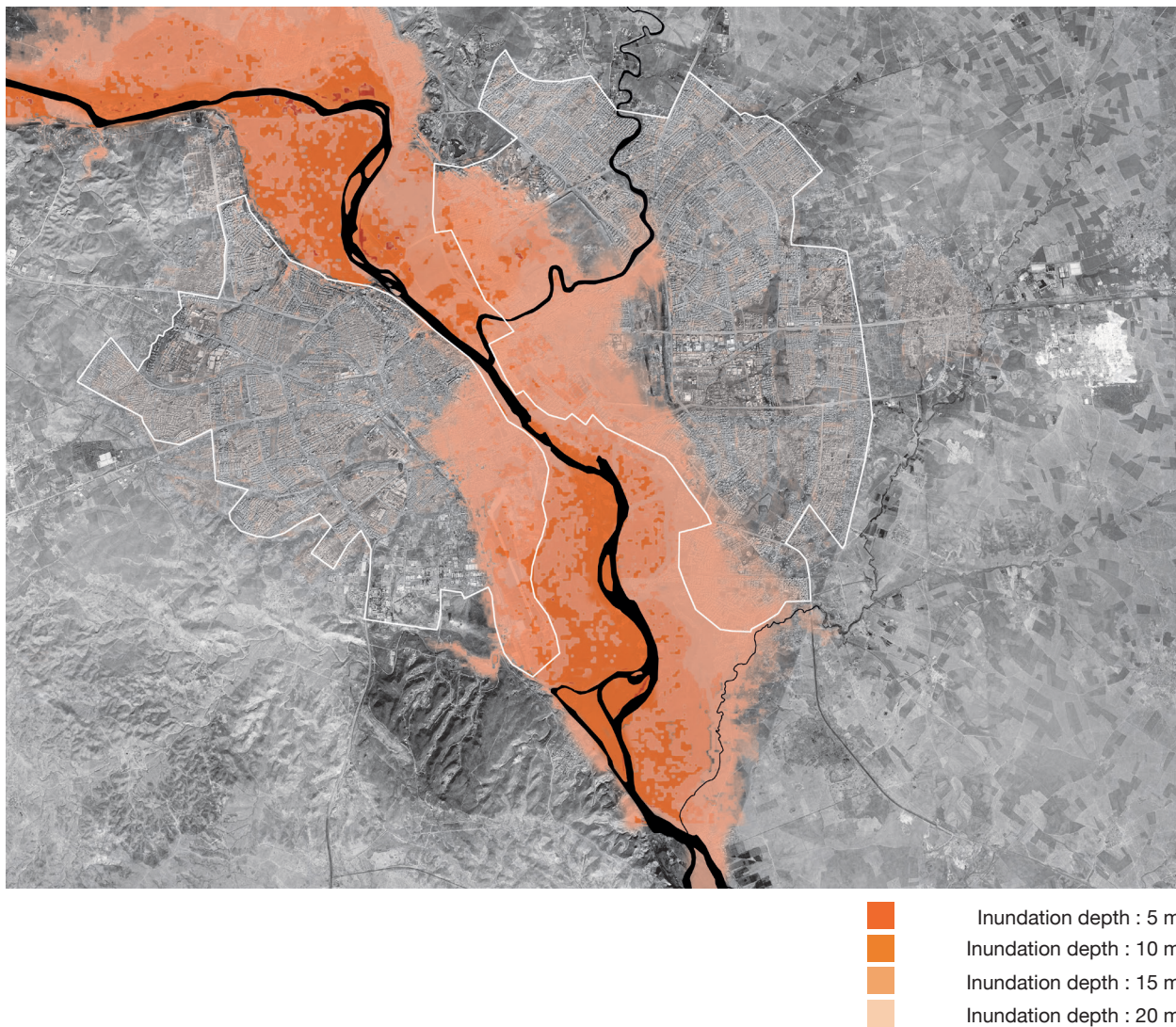


Fig. 2.14 Map of the flooding areas in Mosul

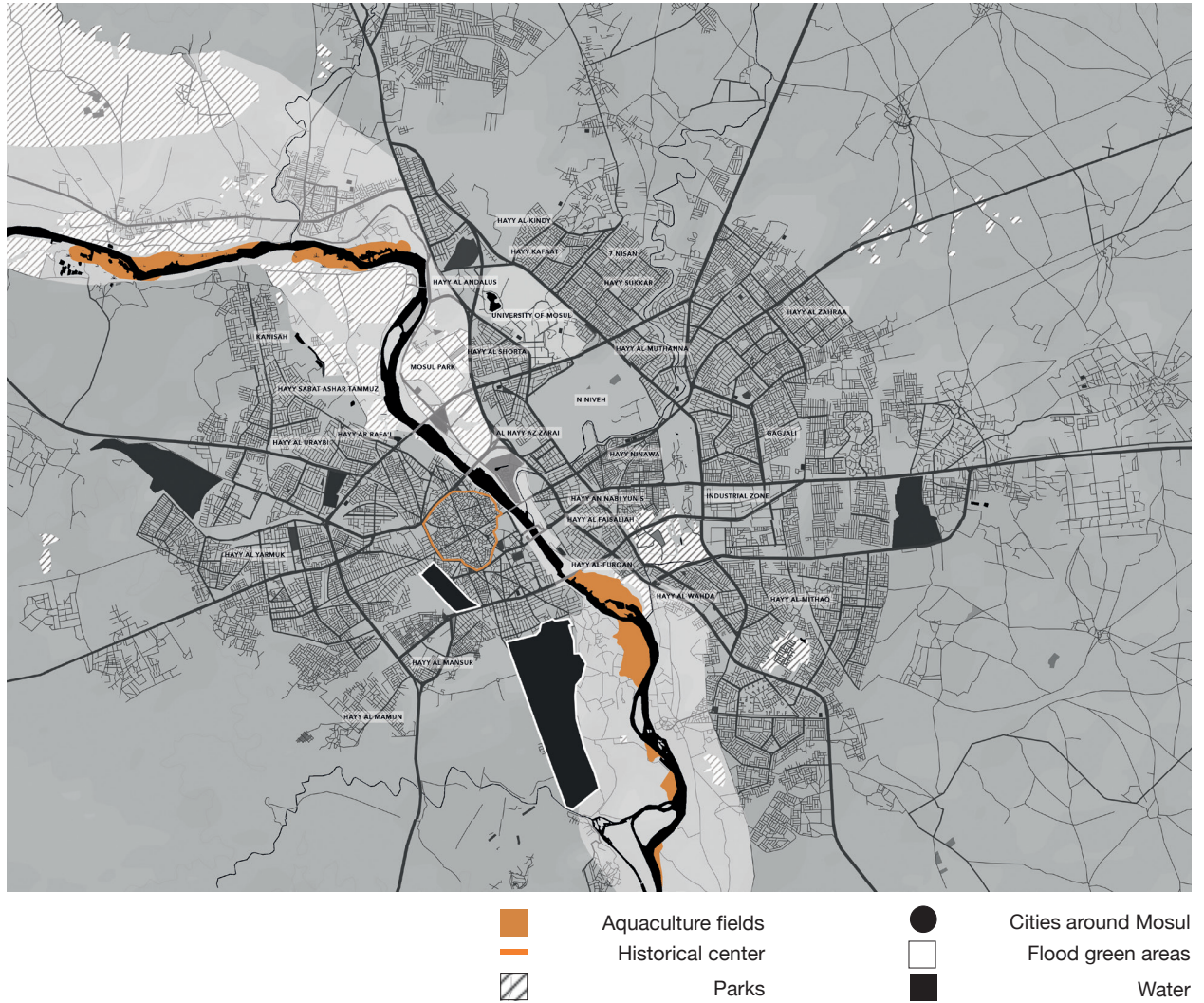


Fig. 2.15 Map of the Mosul surrounding and the green fertile areas created by the floods of the Tigris

Urban Morphology

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 (average 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) outnumber 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 2014⁸.

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.

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

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

destroyed. This will exacerbate the challenges of future stability, rebuilding, and growth in Mosul.

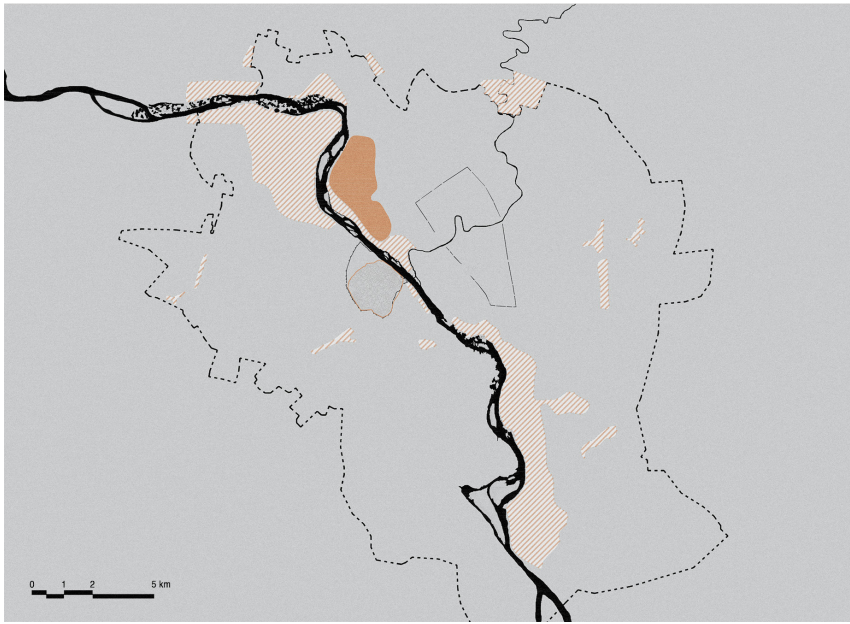


Fig. 2.16 Geen areas

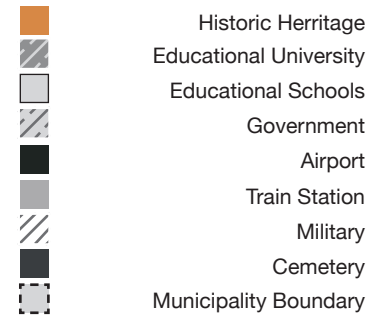
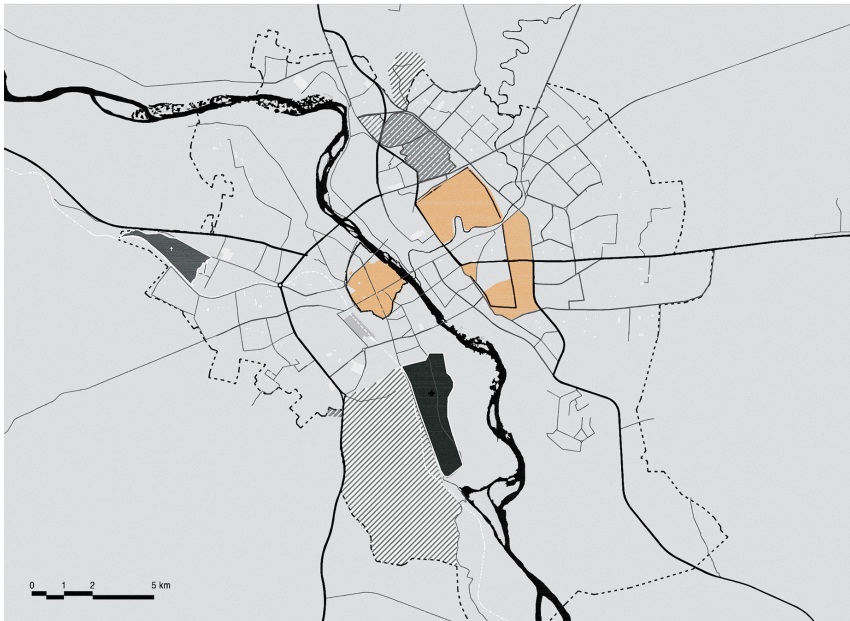


Fig. 2.17 Public facilities

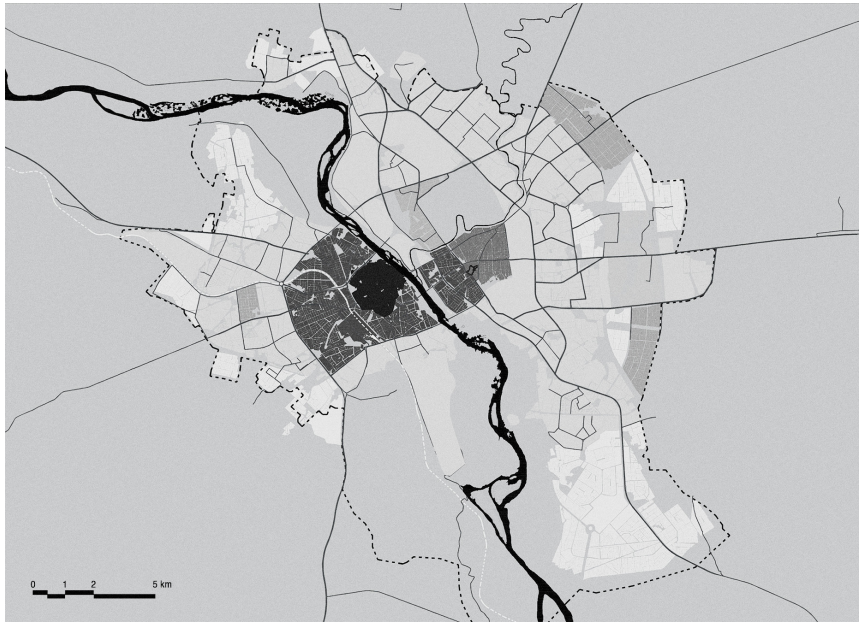


Fig. 2.18 Urban expansion

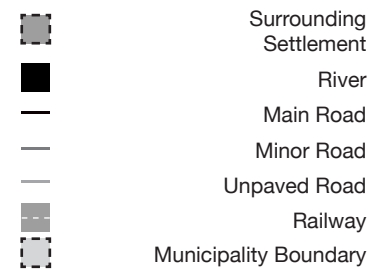
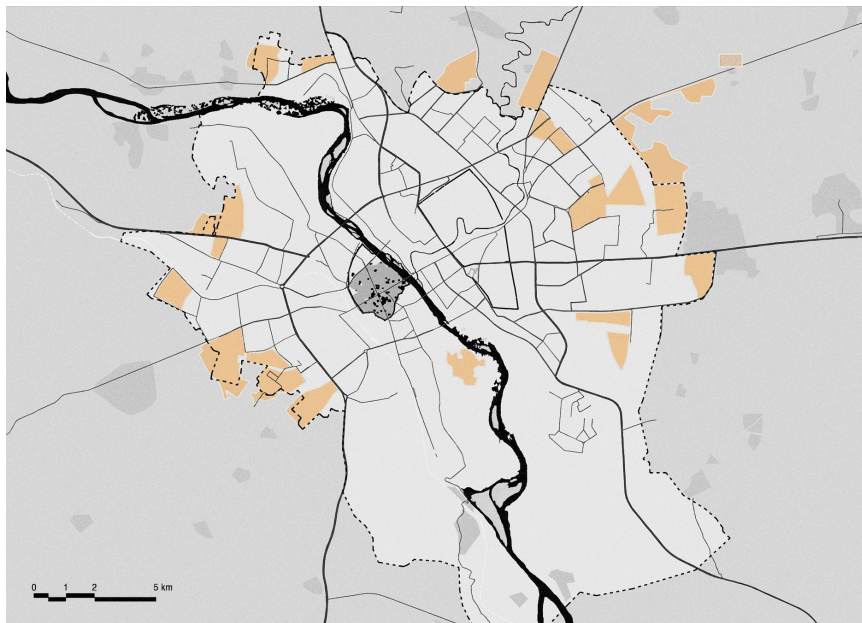


Fig. 2.19 Road infrastructure







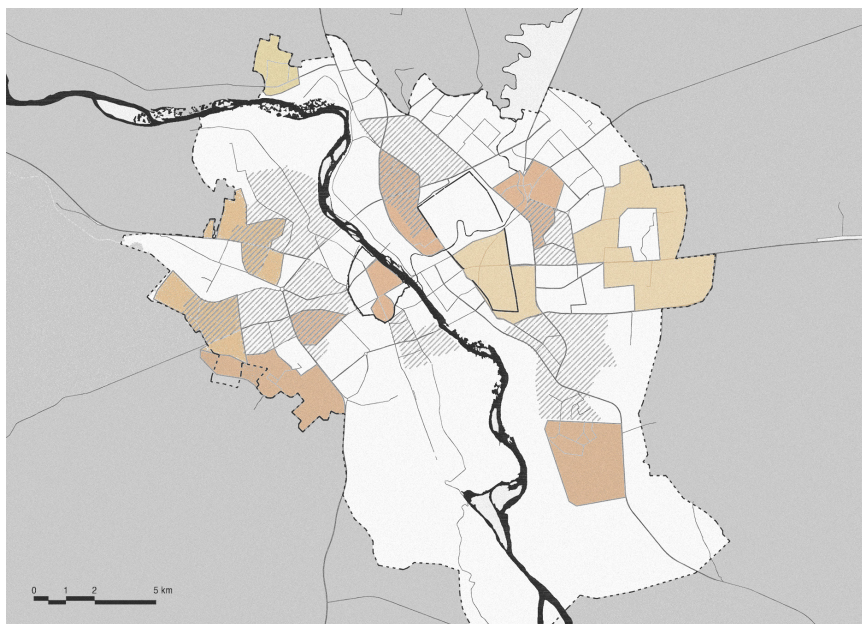
-  Surrounding Settlement
-  Informal Settlement
-  Historic Centre
-  Municipality Boundary

Fig. 2.20 Urban settlements










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

Fig. 2.21 Ethnoreligious prevalence (pre ISIL)

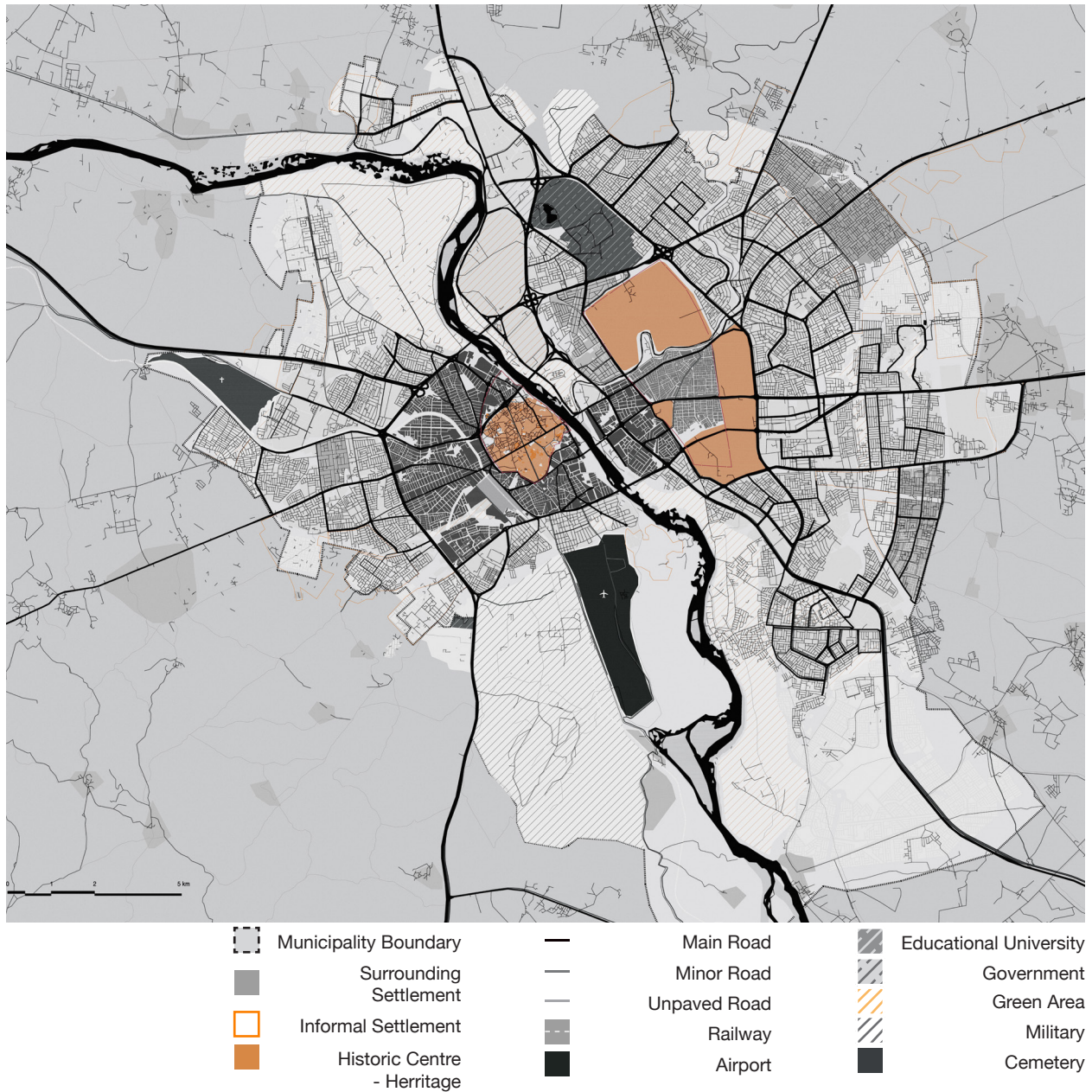


Fig. 2.22 Morphological map of Mosul.

03

55 Urban Analysis

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Urban Analysis: Islamic cities



Study Cases

The Islamic cities, even if they were shaped by different Histories, share similar architectures and urban features. We will study four different study cases to understand better what are their similarities and variances, Aleppo, Bagdad, Damascus and Mosul.

The first aspect that we can observe is the shape of the urban implantation. Usually the location of the city depends on the disponibility of the ressources such as water. The geographic topography is also very important from a strategic point of view. Finally the commercial roads and the proximity to powerfull other cities are playing an important role.

Another important aspect of the Islamic cities is the recurrence of architecture elements such as the souk, the enclosure wall, the mosque, the courtyards, the cul-de-sacs etc.

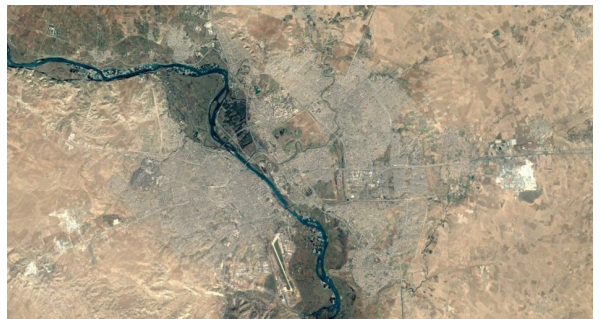


Fig. 3.01 Satellite view of Aleppo and its surrounding.

Fig. 3.02 Satellite view of Damascus and its surrounding.

Fig. 3.03 Satellite view of Bagdad and its surrounding.

Fig. 3.04 Satellite view of Mosul and its surrounding.

Aleppo

The city of Aleppo is located in an area that fills the requirements in water and offers a good strategic configuration.

Located in Syria, the city is the most populated of the country with around 5 millions of inhabitants. «Aleppo is characterized with mixed architectural styles, having been ruled by, among others, Romans, Byzantines, Mamluks and Ottomans»¹

«Various types of 13th and 14 th centuries constructions, such as caravanserais, caeserias, Quranic schools, hammams and religious buildings are found in the old city. The old city is characterized with its large mansions, narrow alleys and covered souqs.»²

«Being subjected to constant invasions and political instability, the inhabitants of the city were forced to build cell-like quarters and districts that were socially and economically independent.»³

1 Yacoub, Khaled (16 July 2010). «Travel Postcard: 48 hours in Aleppo, Syria». Reuters. Retrieved 11 March 2012

2 «Aleppo». Middleeast.com. Archived from the original on 16 March 2012. Retrieved 11 March 2012.

3 «Aleppo-seife: Aleppo history». Historische-aleppo-seife.de. Archived from the original on 26 March 2018. Retrieved 11 March 2012.



Fig. 3.04 Qal'a Halab, Aleppo, General view from west, Syria, XX century, Sir Keppel Archibald Cameron Creswell.



Fig. 3.05 Map of the old city of Aleppo with the main traditional islamic architecture features.



Fig. 3.06 General view of the Umayyad Mosque, Damascus, 1900/1907, Friedrich Sarre.



Fig. 3.07 Map of the old city of Damascus with the main traditional Islamic architecture features.

Damascus

Capital of Syria, Damascus is a major center for culture in the Middle East with around 2 millions of inhabitants.

The Barada River flows in Damascus and provides water to the metropolitan area. The city is located at the intersection of large commercial routes, the North-South that links Egypt with Asia and the East-West that connects Lebanon with the Euphrate valley.

The region around Damascus is called the Goutha, an irrigated land that provides cereals, fruits and vegetables.

«Thus the city today is based on a Roman plan and maintains the aspect and the orientation of the Greek city, in that all its streets are oriented north-south or east-west and is a key example of urban planning.»⁴

The old city of Damascus is protected by walls and gathered the traditional elements of the Islamic architecture such as mosques, madrasas, khans, citadel and souk. Because of its diverse History the city also hosts numerous churches.

4 Ancient City of Damascus, 2013, UNESCO

Bagdad

Bagdad is located in Iraq, near the Tigris river, close to the ruins of Babylon. Founded in the 8th century, the city has always been very important in the region for its political, economical and cultural influence. It also plays a central role in the Islamic world and has a very diverse population.

Bagdad produces 40 % of the country's gross domestic product and its population varies around 6 to 7 millions even if the recent Iraq war reduced significantly this number and destroyed a lot of built heritage.

Its «antique buildings are located in the heritage area, surrounded by old suqs, narrow alleys and traditional Baghdadi houses that were largely built during Ottoman times. Old Rusafa has a long historical span of well over a thousand years, and it has become a complex urban organism.»⁵ «The complex urban structure and form in the city centre of Baghdad has provided an example of how to create privacy and a healthy environment for its people.»⁶

5 Yacoub, Khaled (16 July 2010). "Travel Postcard: 48 hours in Aleppo, Syria". Reuters. Retrieved 11 March 2012

6 Mazin Al-Saffar, December 2020, Bagada, the city of cultural heritage and monumental Islamic architecture



Fig. 3.08 A general view of Baghdad, 1923, Agence Rol.



Fig. 3.09 Map of the old city of Aleppo with the main traditional islamic architecture features.



Fig. 3.10 Iraq. Mosul. Looking S.E. showing Tigris river in the distance, 1932.



Fig. 3.11 Map of the old city of Damascus with the main traditional islamic architecture features.

Mosul

Mosul is located in Iraq, on the Tigris River, close to the ruins of Niniveh in an area that was regularly flooded , creating a humid and very fertile soil.

Historically, the city is an important producer and exporter of marble and oil. The surrounding region is also rich in fields and agricultural productions.

The location of the city, at the intersection of important trade routes and the diversity of its culture, promoted the city as one of the most important of the Islamic world. The old city is extremely rich of historical buildings such as mosques, castles, churches, monasteries and schools.

«The Old City of Mosul, with its various historical building and sites, may be considered as the result of interchange of values throughout hundreds of years, and is a testimony to Iraq's rich cultural diversity in its tangible and intangible forms..»⁷

Mosul was heavily impacted by the Iraq war (see part XX). Many of the built heritage was destroyed and all of the city activities was affected.

7 Old City of Mosul, August 2018, UNESCO

Skyline analysis

The skylines of the Islamic cities also share some common features. The traditional circular plan can be observed by the presence of the a nucleus element such as a mosque or a citadel surrounded by smaller elements like minarets or towers (see fig. XX,XX,XX).

The Islamic cities are also gathering a high concentration of vertical landmarks and more generally a dense quantity of monuments and architecturally important buildings that rhythm the skylines.

The visible compactness of the Islamic cities is also explained by the Shari'ha rules that recommend to the muslims to «hold on firmly together the rope of God» (Qur'an 3:103). The close and dense human settlements respect the concept of «ummah», a community that share their religious activities.

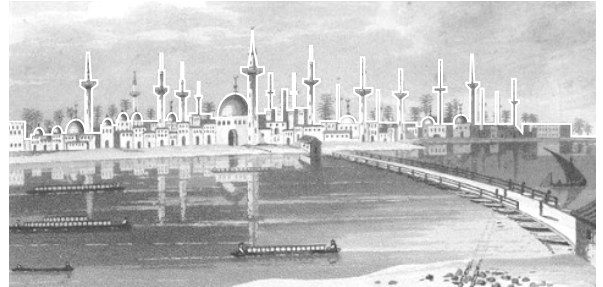
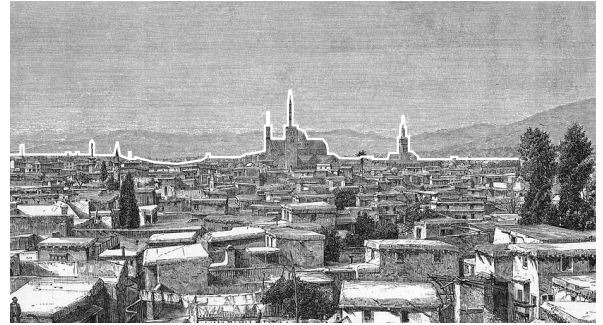


Fig. 3.12 Ottoman Aleppo, Syria, 1685. (*Osmanlı Halep'i, Suriye, 1685*).

Fig. 3.13 Damascus general view, taken from the Christian Quarter Date 19th century.

Fig. 3.14 Iraq. Baghdad. Tigris river and old city.

Fig. 3.15 Iraq. Mosul. Looking S.E. showing Tigris river in the distance, 1932.

The Historical Center

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 traditional 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 synagogues, 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 diversity that 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.»⁸

⁸ Iraqi State Board of Antiquities and Heritage, 2018, Old City of Mosul



Fig. 3.16 Ruins of Nineveh with Mosul in the background, 1929.

The Urban Implantation

Courtyards (page XX)

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

Buildings (page XX)

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

Streets (page XX)

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 (page XX)

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

Tigris river (page XX)

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



Fig. 3.17 Axonometric plans of the historical center of Mosul, showing the different layers of the urban fabric

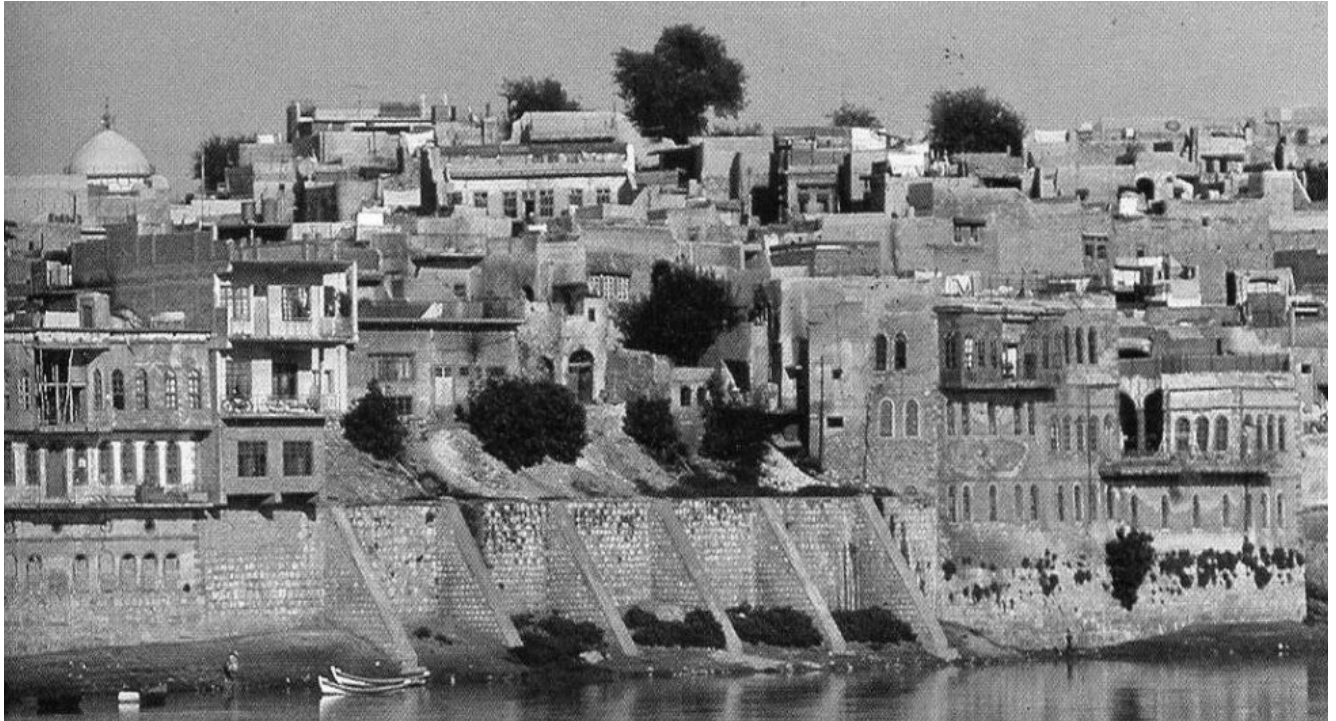


Fig. 3.18 Old city of Mosul on the Tigris river, 2006.

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.»⁹

⁹ Iraqi State Board of Antiquities and Heritage, 2018, Old City of Mosul



Fig. 3.19 Map of the building in the historical center of mosul



Fig. 3.20 Map of the streets in the historical center of mosul

The Built Environment and the Streets

The streets network

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 of the shops of the city are located along their course (see fig. XX). 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 intricate, 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 highest street density and is the result of the spontaneous expansion of the urban fabric toward the West. 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 traditional feature of the Islamic cities. They are very widespread for housing neighborhoods, often



Fig. 3.21 Map of the density of the streets in the historical center, the urban fabric that borders the Tigris river is the more dense, historically it is the first area that was developed and expanded toward the West.



Fig. 3.22 Map of the shops of the historical shops of Mosul, they are mainly located along the main axes and the secondary streets.



Fig. 3.23 The cul-de-sac or dead-ends configuration is present and easy to identify in the Mosul historical center.



Fig. 3.24 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 historical center of Mosul has multiple examples of this configuration also called dead ends (see fig. XX).

«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.»¹⁰

The Courtyards

The courtyard is another very important feature of the Islamic architecture and part of the Islamic traditions and lifestyle. Very present in the historical center of Mosul, it provides an introverted alternative to traditional placement between the buildings.

¹⁰ Iraqi State Board of Antiquities and Heritage, 2018, Old City of Mosul



Fig. 3.25 Market street in West Mosul, Iraq, 2017, crowded street of the second category with a lot of commercial activities.



Fig. 3.26 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.

Analysis by Neighborhood

Historical divisions

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

Historically the neighborhoods of the city were administered separately, giving them a lot of autonomy and independence.

The effects of the war

The independence 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-sufficiency 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.

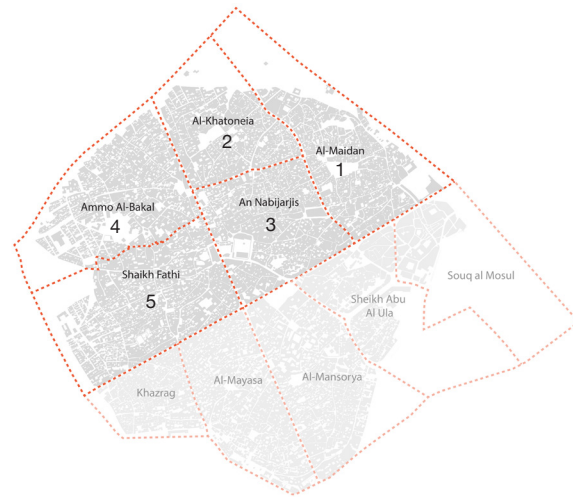
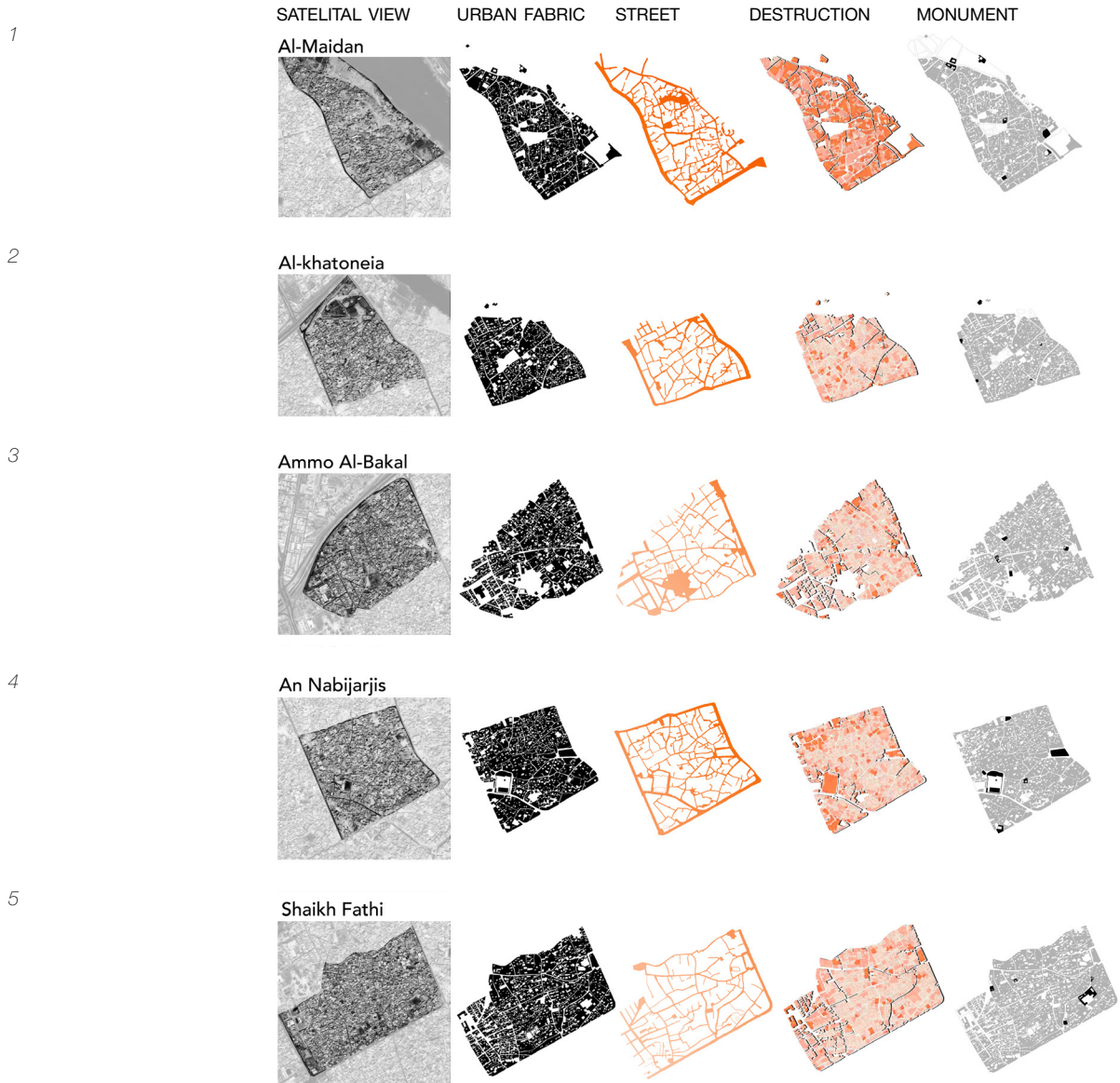


Fig. 3.27 Map of the historical neighborhood divisions of the historical center of Mosul.



Christian neighborhood

During the Iraq war against ISIL, the religion diversity of the old city was compromised. 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.»¹¹

«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.

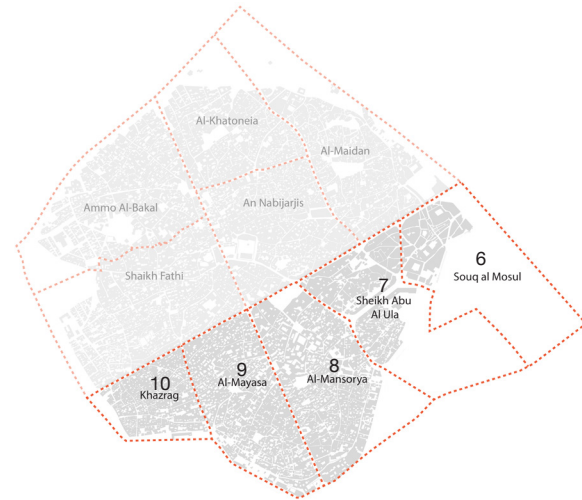


Fig. 3.28 Map of the historical neighborhood divisions of the historical center of Mosul.

¹¹ Christians of Mosul, Iraq, Still Displaced, August 2019, The Tablet

6

SATELITAL VIEW
Souq Al Mosul



URBAN FABRIC



STREET



DESTRUCTION



MONUMENT



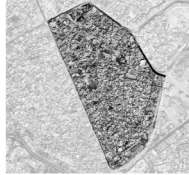
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Sheikh Abu Al Ula



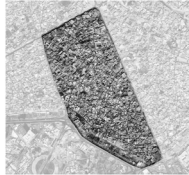
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Al-Mansorya



9

Al-Mayasa



10

Khazrag



The Monuments

A cultural diversity

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.»¹²

A religious diversity

As previously mentioned, Mosul brings together many different religions that have built their own cult buildings around the old city. The most widespread monuments are the mosques, followed by the churches and finally the synagogues (see fig XX).

«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.»¹²

This abundance 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’.»¹²

¹² Old City of Mosul, August 2018, UNESCO

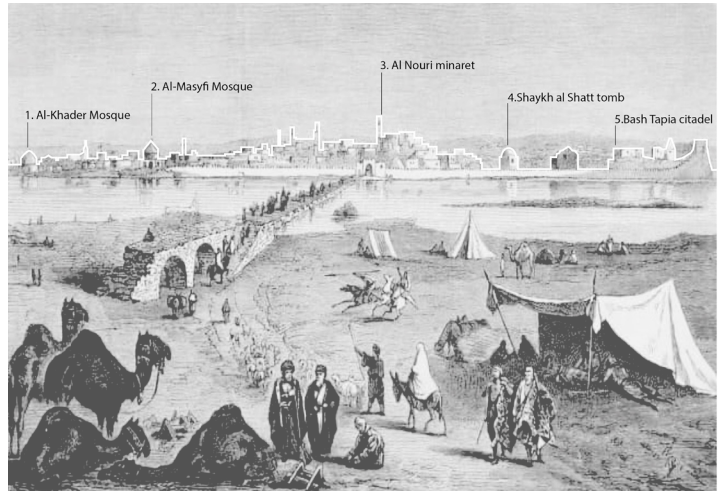


Fig. 3.29 Skyline of Mosul.



Fig. 3.30 Plan of Religious building in the historical center of Mosul.

The 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.»¹³

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.»¹³

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.

¹³ Old City of Mosul, August 2018, UNESCO



Fig. 3.31 Map of the monuments of the old city of Mosul .

Typological Analysis

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 strategic point between Asia and Europe, the Middle East was controlling 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 benefited 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 important at a regional scale and commercial activities continued to be vitals in the urban life of the Islamic cities.



Fig. 3.32 A caravan traversing Shemen Beach in Haifa, 1 January 1887.



Fig. 3.33 Urban survey of the souk, The urban renewal project for the city of Mosul, Section E and F (Report proposals and directives).

The Souq

The markets of the Islamic cities were often divided in areas according to the type of sold products. The central market of the city was dedicated to international export, while a more local market provided merchandise for the inhabitants. In the early decades of the Islamic cities, the markets were more informal and the products were directly 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.

The Khan

An example of transformation of those informal markets into permanent structures is the khan. This building, organised around a central courtyard, is composed by a serie of shops. Each unit is connected to the courtyard by an entrance and is generally composed of two rooms. One as a display area for the products and the other for storage and production.



Fig. 3.34 Iraqi market souk in Mosul City northern Iraq, 1932.

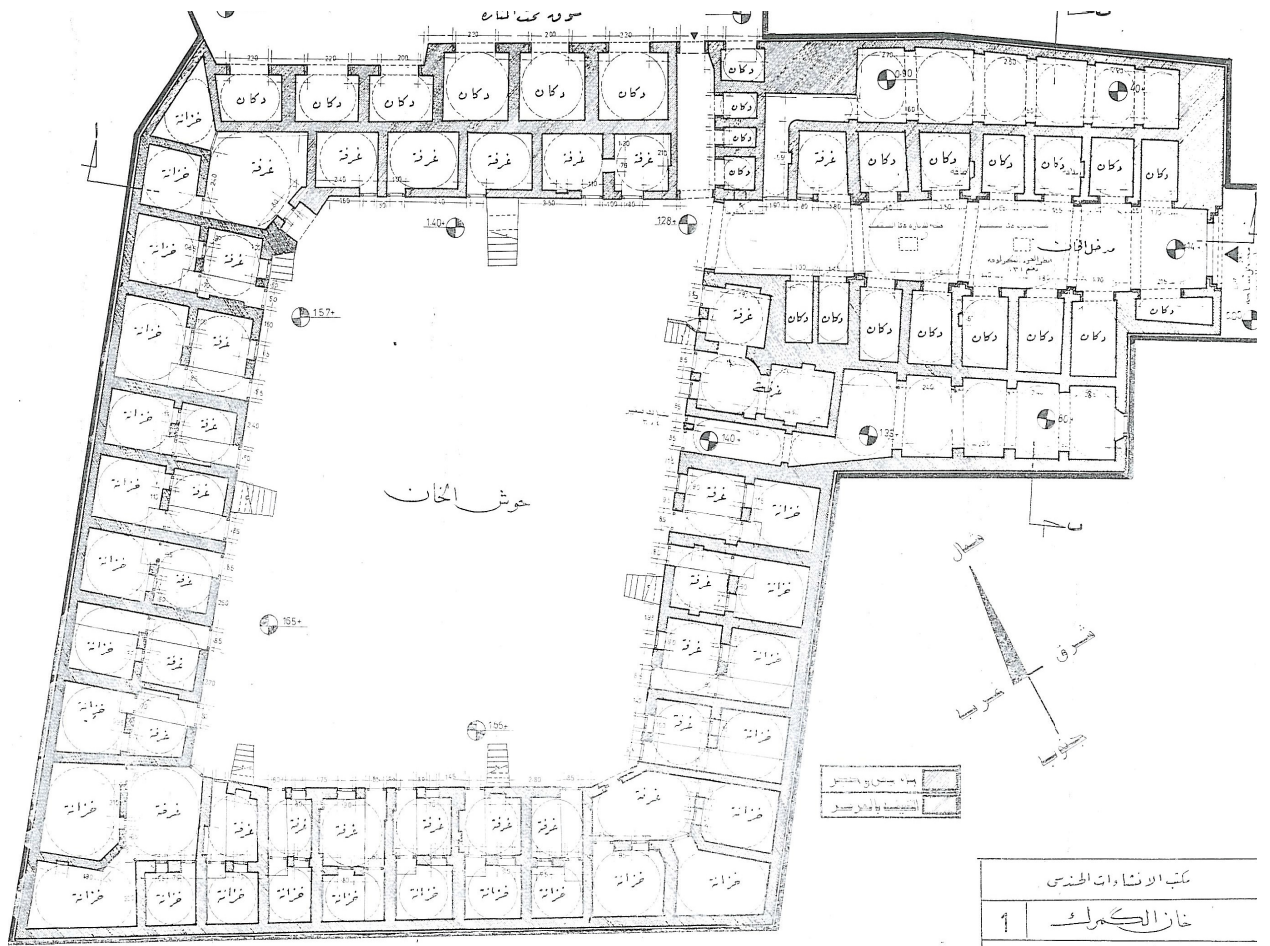


Fig.. 3.35 Urban survey of the souk, The urban renewal project for the city of Mosul, Section E and F (Report proposals and directives).

The Mosque

The mosque or masjid in arabic, which means «place of prostration», is a pillar of the urban organisation of the Islamic cities. Their importance both the 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 specific 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 communities 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 fact, 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.

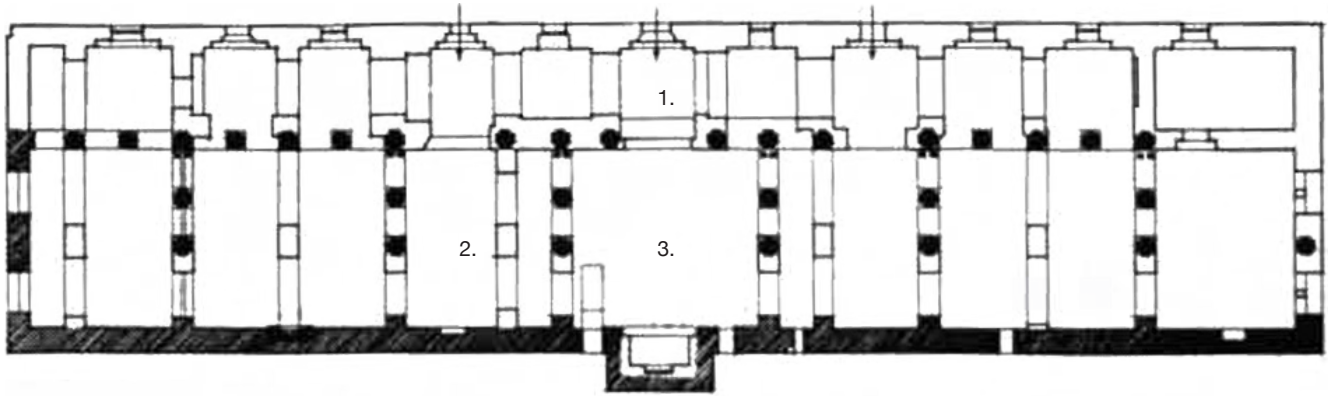
Some internal elements are traditional of a mosque. The main space is the prayer hall where the muslims meet on fridays. The prayer hall contains elements such as the mihrab, or minbar, that have an important role in the rituals. The mihrab, is a niche set into the wall facing Mecca. It is often decorated 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 at 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 separated 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 usually 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.

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 educational purposes. This religious schools



1. Prayer hall
2. Minbar
3. Mihrab

Fig. 3.36 Layout plan of Al Nouri Mosque Complex and layout plan of the Prayer Hall at the beginning of the 20th century, 1920.

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 students were generally living in the madrasas.

Al-Nuri Mosque

The main mosque of Mosul, Al-Nuri, is located in the historical center of the city and works as a landmark for the inhabitants. 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.

According to 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 bordered by a madrasa and a school. The mosque has been modified and rebuilt through history. In 1942 the mosque was damaged by the Iraqi government to rebuild it based on another plan. The minaret was also reinforced after the bombing of Mosul during the war between Iran and Iraq in the eighties. The most recent episode is the destruction of the mosque by ISIL a few weeks before the liberation of the city. Only the central dome and few arches are still standing today. In 2020, UNESCO organized a competition to rebuild the mosque.

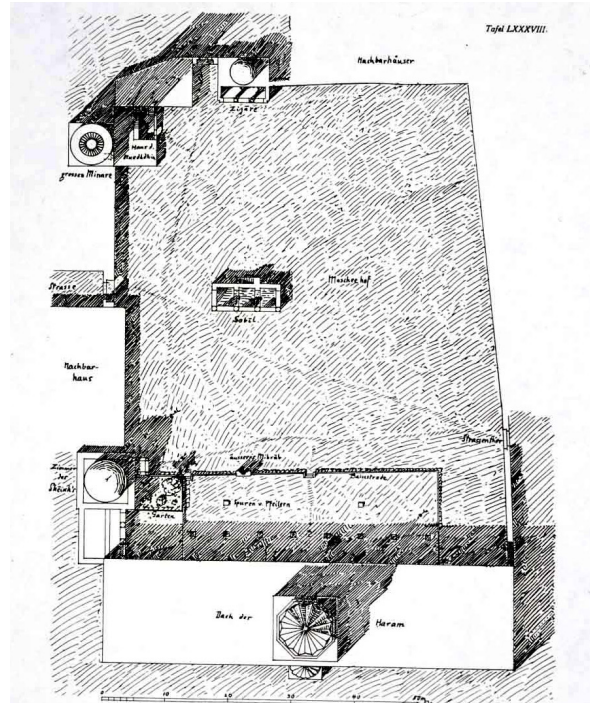


Fig. 3.37 Layout plan of Al Nouri Mosque Complex and layout plan of the Prayer Hall at the beginning of the 20th century, 1920.



Fig. 3.38 The Mosque of al -Nuri with the al -Hadb ' Minaret, from the South-East, in its original state, i.e. before its demolition in 1942.

The Hammam in the Ottoman culture

The hammam or hot bath 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 the South of Irak.

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 pe-riod, it was common to find beauty treatments in hammams such as massage, exfoliation, hair re-mova, henna and even dentists.

The hammam became a social place where people were meeting with friends concluding business trades and gossiping while eating and drinking or bathing.



Fig. 3.39 Iraqi market souk in Mosul City northern Iraq, 1932.

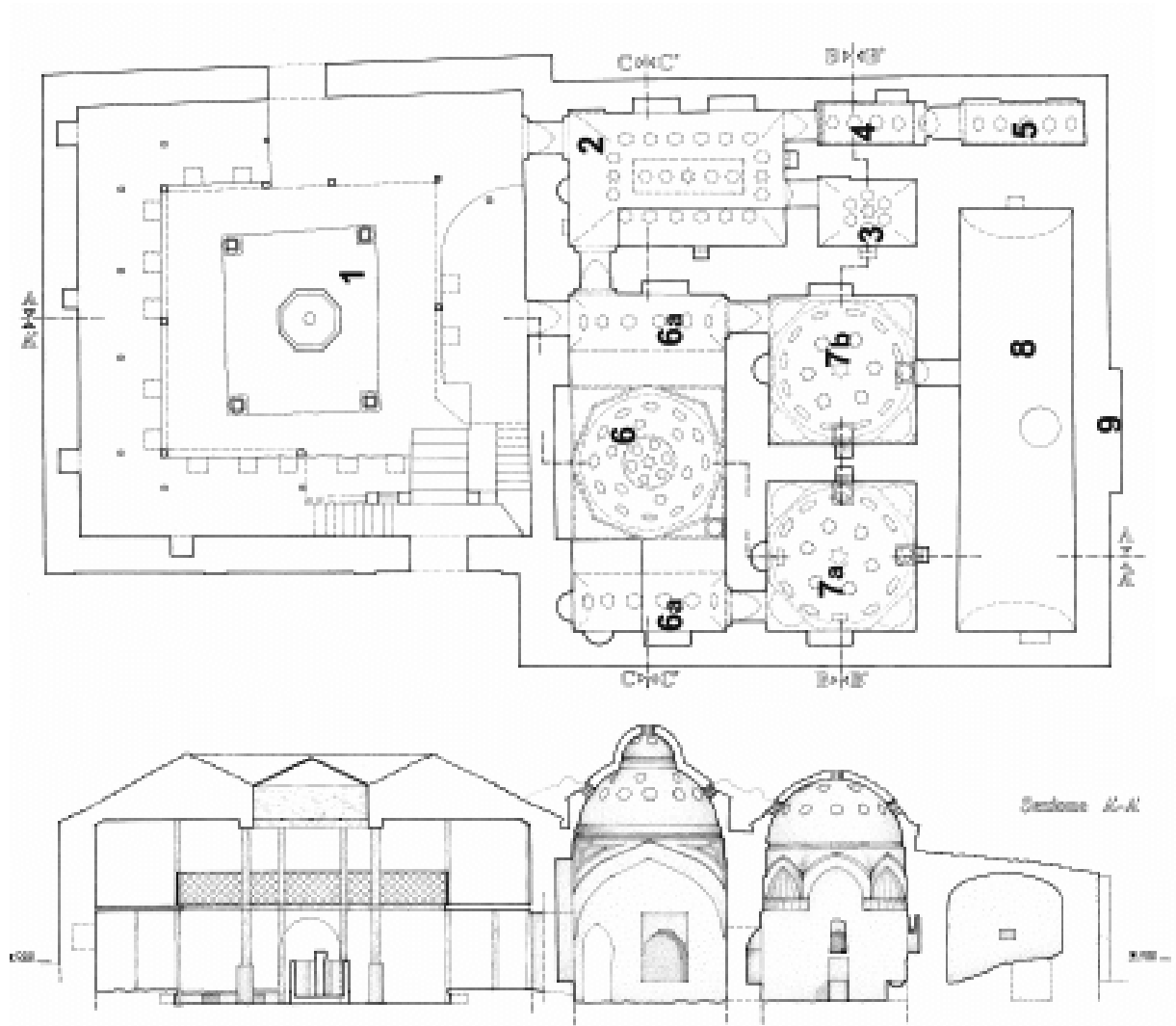


Fig. 3.40 *The Turkish Baths in Elbasan: Architecture, Geometry and Wellbeing* Roberto B.F. Castiglia, Marco Giorgio, Bevilacqua.

Residential blocks

In the historical Islamic cities, residential blocs 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 through a network of narrow streets and dead ends created by the residual space available between each unit. The morphology of the residential blocks and the tortuous access ensured a preservation of the privacy.

Residential Units

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 usually composed of two or three floors with an accessible roof.



Fig. 3.41 Urban form in the arab world past and present.



Fig. 3.42 Iraq. Mosul. Looking S.E. showing Tigris river in the distance, 1932.

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 Iraqi 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»¹⁴ declared the United Nations high commissioner.

A voluntary 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 ideological reasons behind this destructions, those actions were an easy way to capt the world's attention.

14 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.

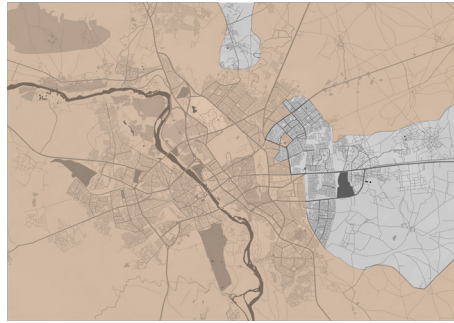
“The first step in liquidating a people is to erase its memory. Destroy its books, its culture, its history”¹⁵

The Battle of Mosul

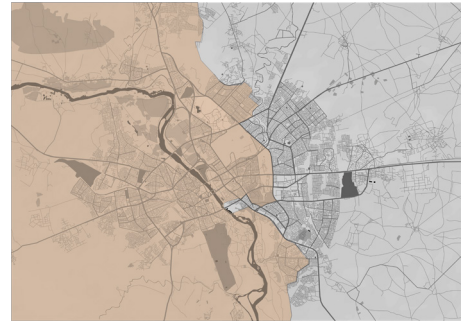
In October 2016, almost two years after the capture of the city, the movements to liberate Mosul began to emerge. Different Iraqi forces participated to the liberation of Mosul, (Iraqi Security Forces ,Peshmerga fighters, Popular Mobilization Forces) ,helped by U.S. and its allies, providing soldiers,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

After five months of war, the eastern 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

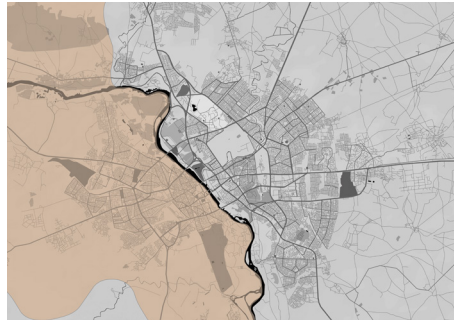
15 Milan Kundera,1979; The Book of Laughter and Forgetting



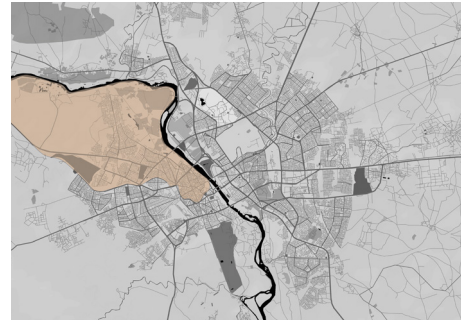
November 2016



January 2017



February 2017



April 2017



July 2017



July 21 2017

Fig. 3.43 Maps of Mosul showing the spatial progress of ISIL from november 2016 to July 2017.

 Areas controlled by ISIL

city. Because of the maze shape of the historical center, the liberation had to be made house by house, street by street. On the 22 June 2017 in a last provocation, ISIL organised the explosion of the Al-Nuri mosque. One month later, the Iraqi 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.»¹⁶

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

The destructions are affecting the city in all of its activities as the cultural, religious, residential, educational and commercial buildings are touched. The touristic activities, large source of revenues for the Mosul are also suspended. The city had «no basic services, no food, no water and no fuel.»¹⁷

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

Fig. 3.44 A view of a commercial street of Mosul after the liberation , August 2017.



Fig. 3.45 A depiction of the devastation in Mosul after the Battle for Mosul, 9 th July 2017.



Fig. 3.46 A general view of the destruction in Mosul's Old City, 9 th July 2017.





Fig. 3.47 Map of the building damages in the historical center of Mosul

04

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Metodological Approach



Premises_Theory & History of Restoration

Progenitors of Restoration

The following chapter is dedicated to the exploration of reconstruction 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 initiated to gain its value and importance in history, when it was a new science.

Before the 19th century the intervention on behalf of a preexisting building was set in continuity with it, both as an answer to functional demands and as an architectural expression. Even the most important

refurbishment plans were meant to create something new, and not to reproduce what was before; after the 19th century the interventions 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.

The most important influencers and theorists for this change in the position toward restoration approaches were John Ruskin, Eugene Viollet-

le-Duc and Camillo Boito, whose ideas are shortly illustrated below.

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 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 stern 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."¹

Eugene Viollet-le-Duc_Stylistic 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

1 Ruskin, J, Seven Lamps of Architecture, New York: Cosimo Classics 2007.

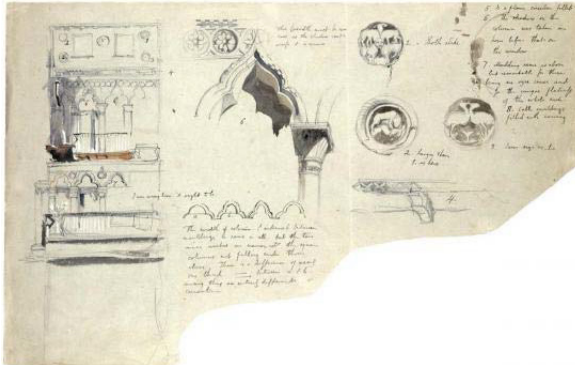


Fig. 4.01 John Ruskin_studies for "The Stones of Venice"



Fig. 4.02 Viollet-le-Duc_Pierrefonds before restoration

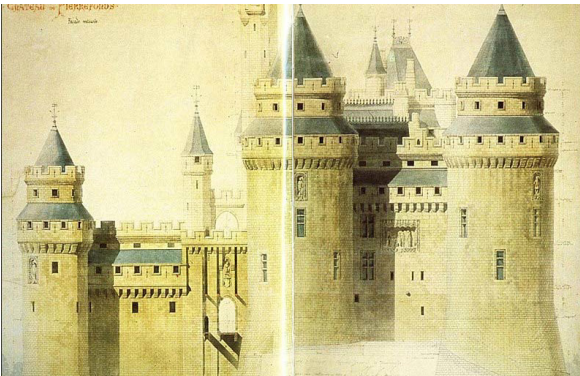


Fig. 4.03 Viollet-le-Duc_Pierrefonds after restoration



Fig. 4.04 Camillo Boito_Milano Porta Ticinese

forth his theories on restoration and preservation.

”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.”²

“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.”

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?

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

Case Studies of Urban Reconstruction in Europe

“Additions or renovations must be completed with a different character to the one of the monument, noting that, if possible, the aspect of the new forms must not steal too much attention with their artistic aspect.”³

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 Europe participated in the war reduced the cities to rubble, including masses of housings, schools, hospitals, infrastructure systems, and cultural monuments.⁴

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 recon-

struction was being done all over Europe.⁵ 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-build 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

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

4 Diefendorf, J, *Rebuilding Europe's Bombed Cities*, Palgrave Macmillan UK, 1990.

5 Diefendorf, J, *Urban Studies Vol26 N1*, 1989, p.129.

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.

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.⁶

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

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

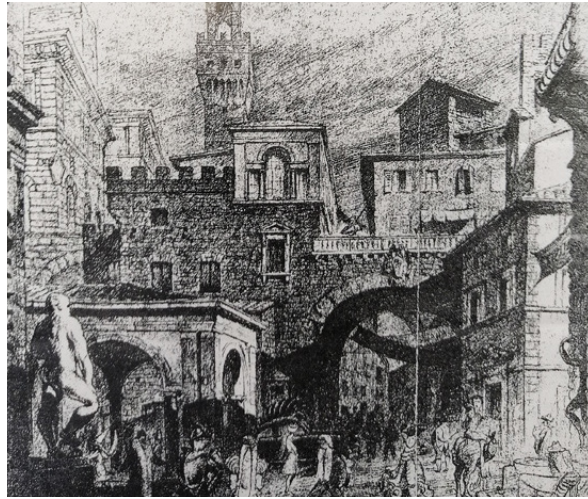


Fig. 4.05 Carlo Maggiora, from “Zibaldone”, 1947. Debates on the reconstruction of Florence

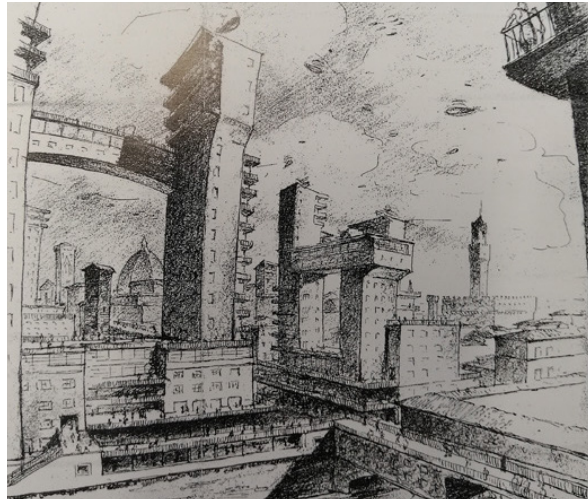


Fig. 4.06 Carlo Maggiora, from “Zibaldone”, 1947. Debates on the reconstruction of Florence

outcome can result in the excess mimicry. Speaking of the city of Warsaw, which historic centre 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”.⁷

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.⁸ 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 chapter aims to illustrate and discuss the methodological design approaches involved in architectural reconstruction or transformation

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

8 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.”⁹

“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.”¹⁰

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 necessity 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 specific reasons that made this approach of our place

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

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

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 stylistic coherence and homogeneity, would not allow an architect to “carry on with the already defined plan of his dreams”¹¹ 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. In **_sheet 02 Munster** we see that the starting point of the reconstruction was whatever left from the previous urban fabric, there was no possibility for a new infrastructure system or for a modern urban plan.

The second category stands for the cases that respect the previous urban fabric, it shows the attempts of 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

11 Mamoli, M, Trebbi, G, Storia dell'Urbanistica L'Europa del Secondo Dopoguerra, Editore Laterza 1997, p. 98.

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 03 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 05 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 06 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 severely 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.¹² We can see in **_sheet 07 Warsaw** how the planners, led by the guidelines of determining the proper proportions between recreation of the historic city and transformation of that city, tried to transcribe the existing 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 asstetive 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 modern 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.”¹³

12 Diefendorf, J, *Rebuilding Europe’s Bombed Cities*, Palgrave Macmillan UK, 1990, p.88.

13 Mumford, L, ‘Warsaw Lives Again’ (1946).

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 08 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 09 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 monumentality 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 process 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 10 St. Die & _sheet 11 La Rochelle**, start from the almost complete tabula rasa situation, proposing a radical reorganisation of the cities, led by the modernist ideas of zoning, infrastructure hierarchy, functional 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 intangible heritage can be maintained and conveyed. 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 chapter 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 Cases

Urban Reconstruction in Europe

Exact Redrawing of Previous Urban Elements

St. Malo, France
Munster, Germany

Respect of Previous Fabric

Florence, Italy
Dresden, Germany
Totterdam, The Netherlands
Frankfurt, Germany

Interpretation of the Previous Urban Fabric

Warsaw, Poland
Maubeuge, France
Le Havre, France

Denial of the Previous Urban Fabric

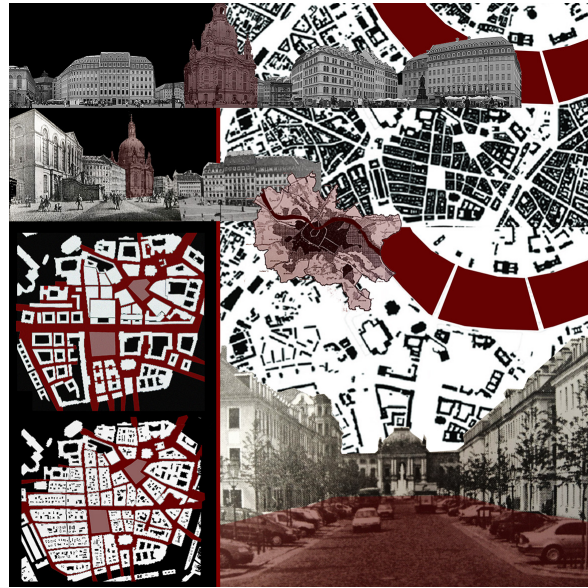
Saint-Die, France
La Rochelle, Pallice, France



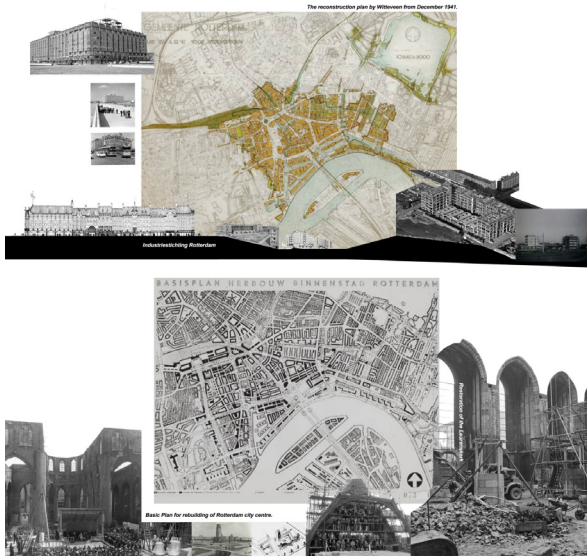
Fig. 4.07 Map locating the case studies.



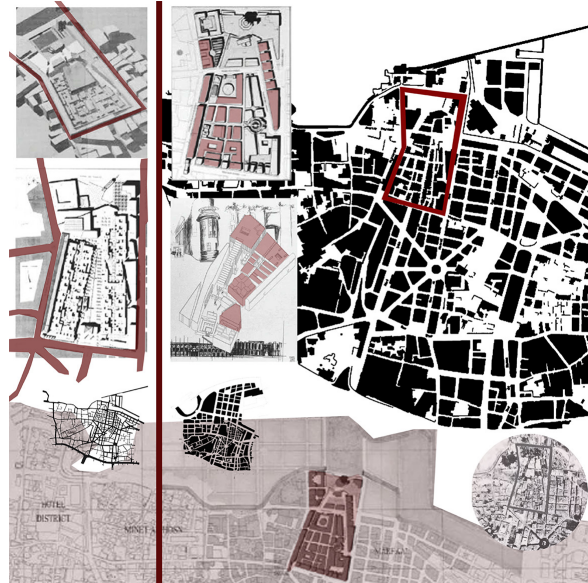
111 01 St. Malo, France



112 02 Munster, Germany



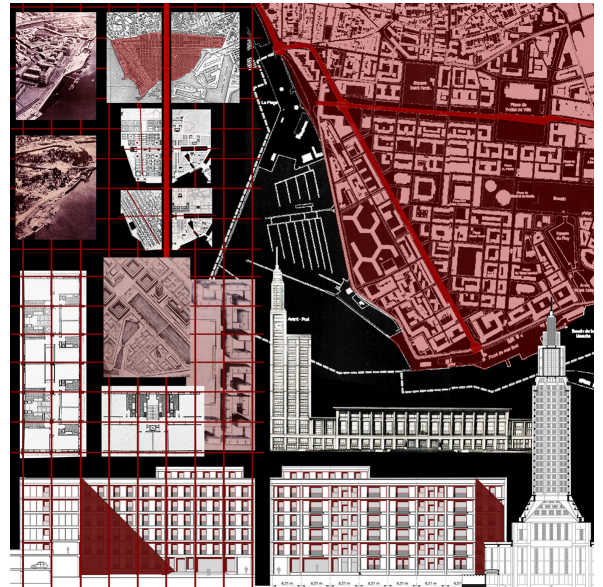
113 03 Munster, Germany



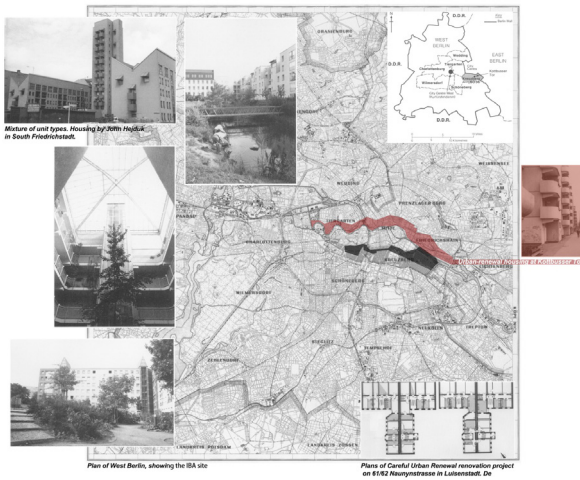
114 04 Munster, Germany



115 05 Munster, Germany



116 06 Munster, Germany



Exact Redrawing of Previous Urban Elements

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, ramparts and castle that were considered recoverable. However, this strictly conservative attitude extends towards the general strategy for the historic centre.

Starting from the remains - facades and ruins - the previous alignments were confirmed: the buildings, even of little remains, were reconstructed *sur place et à 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, establishes 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. 4.09 St. Malo before the destruction.



Fig. 4.10 St. Malo after the destruction.



Fig. 4.11 Reconstruction plan of St. Malo by Arretche.

MUNSTER, GERMANY 1960s

Munster, a gothic city of the Westpfalia region, during the WWII lost 90 percent of its historic centre. Nowadays, it looks exactly like an old gothic city – it is hard to say that it ever suffered throughout the war. The gothic structure is remained – the continuity of spaces, homogeneity in the typology - everything makes an impression of an undoubtful “historic” city. However, this example of a “historic” city is a mere product of a reconstruction process started after the WWII and completed in the 60s.

The first reconstructon plans, “Idenkizze” and “Altstadtplanung”, presented in 1947, were aiming “to preserve the ancient urban planning system.” But the city plan does not remain identical. Indeed, it has some variations – the chief planner Bartman intended to treat “the old urban layout with the respect of feelings of our lives today”. So, it is noted that in the new plan the roads, traced from scratch, are much more numerous in terms of modifications and enlargements. Also, for the buildings that enclose and give the shape of some persuasive spaces, the substantial difference between the pre-existing and reconstructed was required.

The objective of the reconstruction excluded the replicas of the derivation of forms of the past, which led to all the possibilities for the interpretation of the genius loci of the city. The controlled conservation of the layout plan but the allowance of the individual stylistic modifications and interpretations turned in to the “replicas of quality” rather than of the previous physical state.



Fig. 4.12 Munster 1939 before the destruction.



Fig. 4.13 Munster 1945 after the destruction.



Fig. 4.14 Munster 1960 after the reconstruction.

Respect of Previous Urban Fabric

DRESDEN, GERMANY 1990s

The reconstruction of Dresden, where about 85% of the historic city was destroyed, was led by the main principle of conveying 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 “re-designing” 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 neighbor-hoods.”

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.



Fig. 4.15 Pre-war Dresden's Altstadt (Frauenkirche in red).

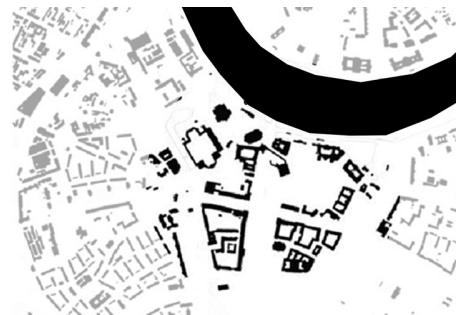


Fig. 4.16 Destroyed Dresden's Altstadt.



Fig. 4.17 Reconstructed Dresden's Altstadt (Frauenkirche in red).

FLORENCE, ITALY 1950s

The city of Florence, not being an exception, was badly damaged by the WWII. For the areas surrounding Ponte Vecchio the competition was launched. The debate about “either to do same as the pre-war state, or introduce new elements” was on going. 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.

The definitive project considers the pre-existent urban fabric although with some corrections, such as remove the traffic in the north south in anticipation for the pedestrianization etcetera. The building mass is arranged in such a way to restore the long continuous building curtain along via Por Santa Maria. Around the church of S. Stefano and other areas the new edifices re-establish and re-propose the original spatial balance.

The similarities with Dresden approach are notable: the area between the buildings are one of the focal points of the architects chasing the aim of reconstruct the typical atmosphere and sensation of the city. The relationship between heights, volumes, enclosures is maintained in the new proposals. The refusal of “com’era e dov’era” made it possible to combine the traditions with modern social aspects - the proposals, evoking the erstwhile cityscape in terms of volumetric composition, familiar typology and shapes, however with introduction of new modern design element.



Fig. 4.18 Areas around Ponte Vecchio, pre-war state.



Fig. 4.19 Areas around Ponte Vecchio, destroyed buildings.



Fig. 4.20 Areas around Ponte Vecchio, definitive project.

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 differentiating various types of small scale architecture exemplifies 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. 4.24 Kop van Zuid dockland before transformation.

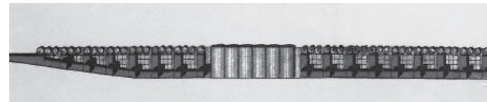


Fig. 4.25 Proposed facade by Kleihues.

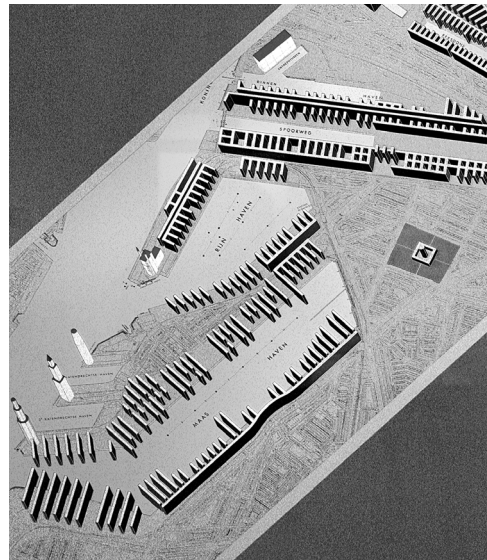


Fig. 4.26 Overview of Rossi's vision for Zuid.

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 entertainment; it demonstrates a great attempt to re-type the interrupted routes of tradition with a strong respect to the historical authenticity of the city and a sense of refoundation destined to last.



Fig. 4.27 Frankfurt before the WWII.

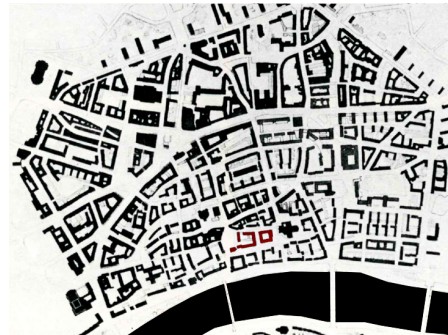


Fig. 4.28 Reconstruction plan Fluchlinienplan, 1948.

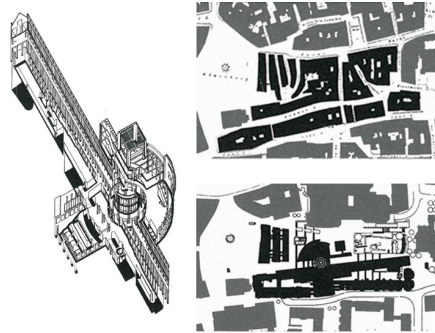


fig. 4.29 Project axonometry for Dom-Romerberg-Bereich

fig. 4.30 Area of Dom-Romerberg-Bereich before and after the WWII

Interpretation of Previous Urban Fabric

WARSAW, POLAND 1945-1949

Warsaw almost completely destroyed during the 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 Marszałowska street extended to the north 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 Marszałowska 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 of mimicry. It was designed on the basis of iconography - the frontal facades were rebuilt by the study and copy of Canaletto paintings of the old town and other archival materials, where the materials were not available, the fronts were designed by “analogy”.

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 approach rises the visual solely architectural nature of the city above the historical, economic and social components of memory that architecture stores.



Fig. 4.31 Warsaw before the WWII, 1938.



Fig. 4.32 Warsaw after the reconstruction, 1955.



Fig. 4.33 South front of the Market Square, fragments remained after the war; after the reconstruction.



Fig. 4.34 the Market Square, before the war, after the reconstruction

MAUBEUGE, FRANCE 1958 Andre Lurcat

The small French city of Maubeuge on the Belgium border was seriously bombed during both World Wars. Andre Lurcat 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, Lurcat 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 vast provision of green areas respond to the concept of *cite jardin urbaine*.

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.

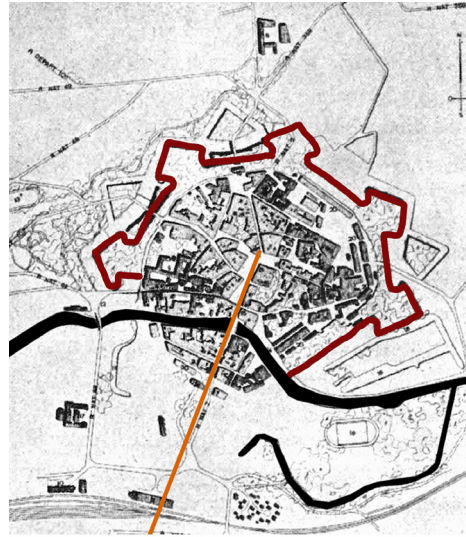


Fig. 4.35 Pre-war plan of Maubeuge.

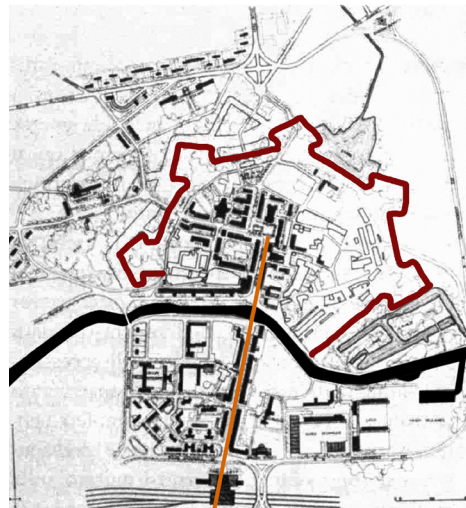


Fig. 4.36 Proposed reconstruction plan of Maubeuge by Lucrat.

LE HAVRE, FRANCE 1964 August 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 constructed 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 necessary for the port city, the team of Perret managed to adapt the town's urban fabric to the new needs without completely neglecting the historical component of the town development.

From the experience of Le Havre, the new concept is emerging, which is the enlightenment 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.

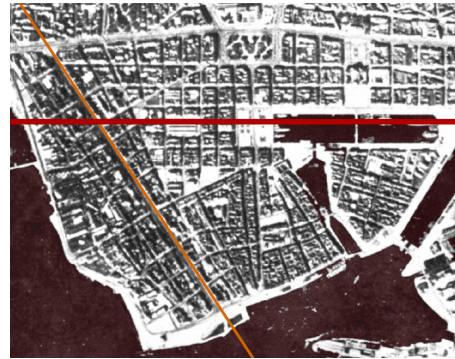


Fig. 4.37 Le Havre before the destruction.

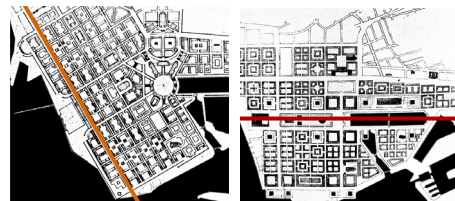


Fig. 4.38 Attempts of architects of Perret's team: Le Donne e Lagneau; J. Imbert.



Fig. 4.39 Adopted plan by A. Perret.

Denial of Previous Urban Structure

SAINT-DIE, FRANCE 1945 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- Die. 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-Die 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.

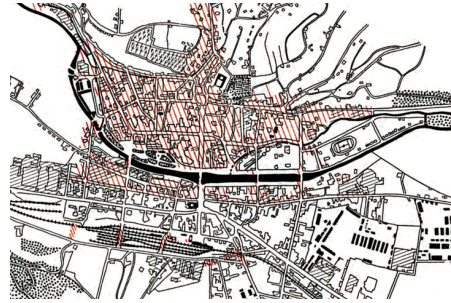


Fig. 4.40 Plan of St.-Die before 1944. The area shaded in orange was destroyed

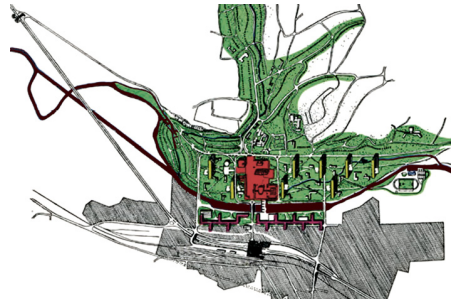


Fig. 4.41 Urban plan for St.-Die, Le Corbusier. (red-city centre, green-park, magenta-factories, yellow-unites, blue-water, grey-not destroyed)

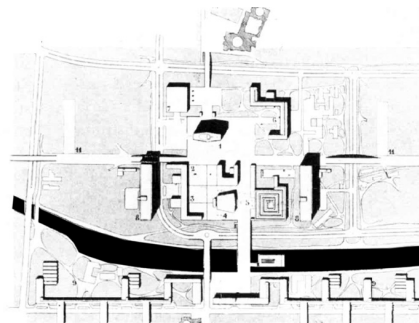


Fig. 4.42 Plan for city centre of St.-Die, Le Corbusier

LA ROCHELLE, FRANCE 1945 Le Corbusier

In 1945 Le Corbusier receives the assignment for the reconstruction of La Rochelle, the seaport city in the south-west coast of France.

The proposed plan both inserts the organizational schemes of the territorial scale and proposes to recover the ex-base of submarines as a new large commercial port. While blocking the urban expansion around the nucleus of the historic centre, the plan concentrates in the destroyed area of La Pallice and the potentiality for its reconstruction.

The latter consists of industrial and commercial zones occupying the port area and the new residential areas arranged parallelly to the axis joining the Old Town and the port. In the plan Le Corbusier tries to apply his tools that concern the fictionalizations, the implication of zoning, the separation of areas, separation of pedestrian and vehicle streets etcetera. The composition consists of ten *unites d'habitation*, skyscrapers and the implementation of horizontal and vertical gardens.

The essence of the decisions taken by Le Corbusier, and which he succeeded in having adopted by the victims, the Municipal Council, the Prefecture and the Ministry, are as follows: The industrial city will be a “Green” city (decision which implies certain arrangements of private property).

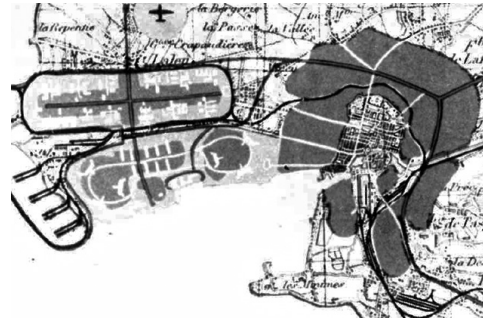


Fig. 4.43 First sketch of Le Corbusier for La Rochelle-La Pallice

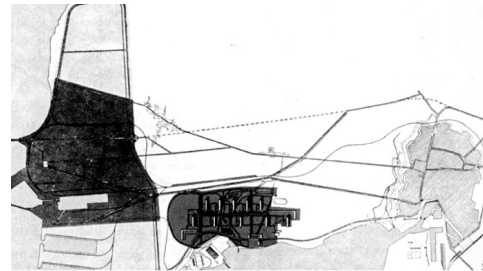


Fig. 4.44 Further attempt of Le Corbusier for La Rochelle-La Pallice

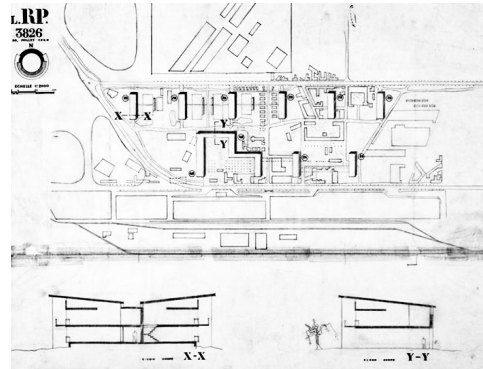


Fig. 4.45 Further attempt of Le Corbusier for La Rochelle-La Pallice

Case Studies of Urban Reconstruction and New Constructions 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 comprehend 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 reconstruction phenomena. Thus, there is a certain interaction between what we build and what we believe in, a man builds its own environment.¹ 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.”²

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, the practice of reconstructions and new constructions that were operated in those models characterise the architecture and the methodology used in this specific context.

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

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

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 01 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 starting 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 critical 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, such as Ziggurat tower etc. The common observation here is that the typological character of the Beirut's Souqs, which is the linear continuous arrangement, is not critically altered but rather preserved,

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.”³

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 understand 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 02 New Gourni & _sheet 03 New Bariz** demonstrate the better ways of solving some urgent problems with architecture, whether it's a housing problem, climatic problem 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 principles 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 linked to the context. In **_sheet 02 New Gourni** the hierarchical organisation of public spaces,

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

the materials and forms used by Fathy reflect the Old Gourni village and the lifestyle of its inhabitants. At the same time, Fathy attempts to harmonize the social structure of the inhabitants by an appropriate architectural settings. The same can be said on **_sheet 03 New Bariz**, where the elements used by Fathy are like extracted from the original context, re-interpreted and assembled again for a new demand. So, the theory that we learn from Hassan Fathy is that of the respect of regionalism. However, it does not mean the regional regionalism - 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 respect the natural environment, you can be punished either by nature or by man.”⁴

Fernand Pouillon with his works in Algeria during the 1950s 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, looking for an architecture for a specific country, that would be between the tradition and modernity.⁵

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

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

The residential complexes of Diar es Saada and Diar el Mahccoul **_sheet 04 Diar es Saada & _sheet 05 Diar el Mahccoul** both represent the plans that are designed by a modern movement architect - based on horizontal vision of space, clearness in shapes and functional division. 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.”⁶

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 reminiscent 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.

Another housing complex described in **_sheet 06 Climat de France** , intended for a more marginalised Muslim population in Algeria, reflects the points of differentiations of spaces for men and women by following the historic devices. More

than two hundred shops on the ground floor, evenly distributed within the area and integrated with the residential typology, symbolise the role of service to the person. In the upper part of the complex there is a religious construction, the Mosque. The main square known as the two hundred columns constitutes the core of the neighbourhood.

Thus, as mentioned before, the knowledge of the context is becoming an irreplaceable tool for intervene in a conscious way and comprehend the generative logics of the area. The knowledge of the context comes mainly from in-depth study of history, evolution 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

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

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.

List of Cases

Reconstruction and New Constructions in the Middle East

Urban Reconstruction

Projects for the Souq of Beirut, Lebanon

New Constructions Read as Urban Reconstructions

New Gournia, Egypt H. Fathy

New Baris, Egypt H. Fathy

Diar es Saada, Algeria F. Pouillon

Diar el Mahccoul, Algeria F. Pouillon

CLimat de France, Algeria F. Pouillon

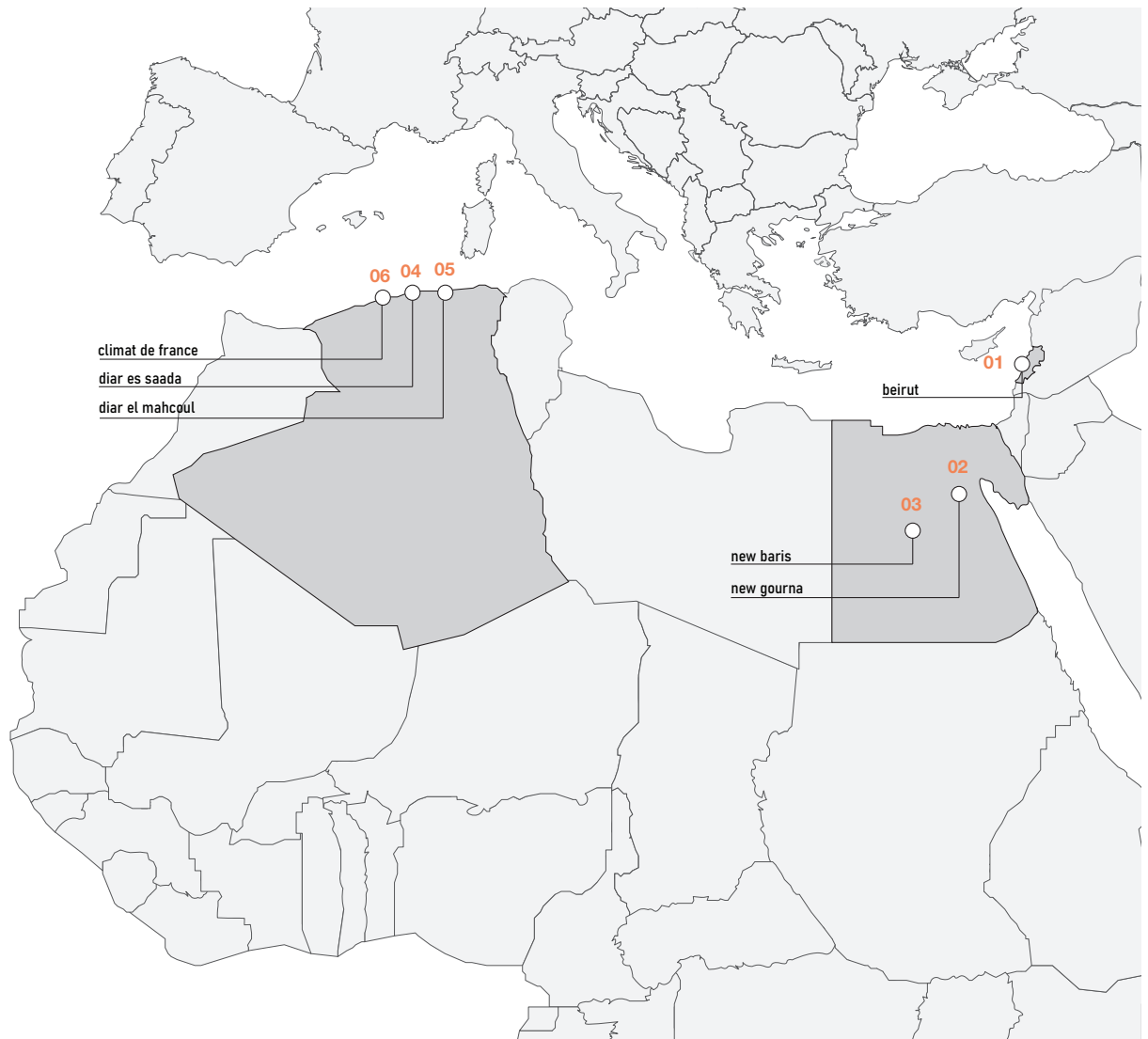
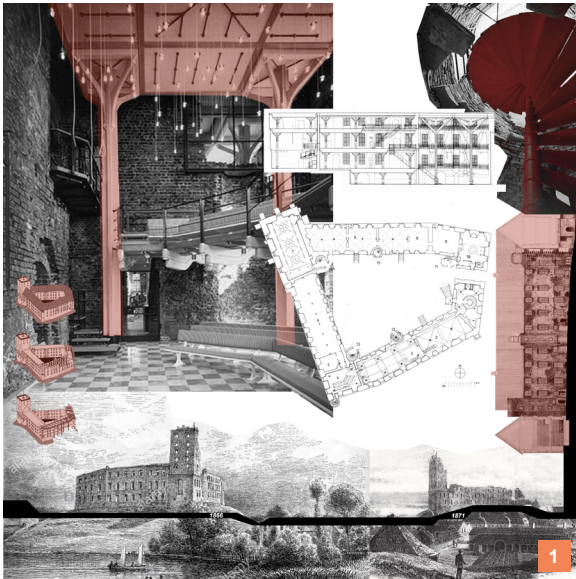
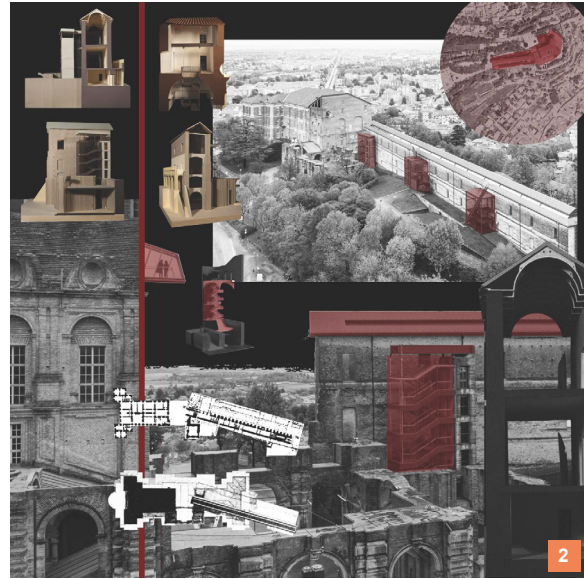


Fig. 4.46 Map locating the case studies.



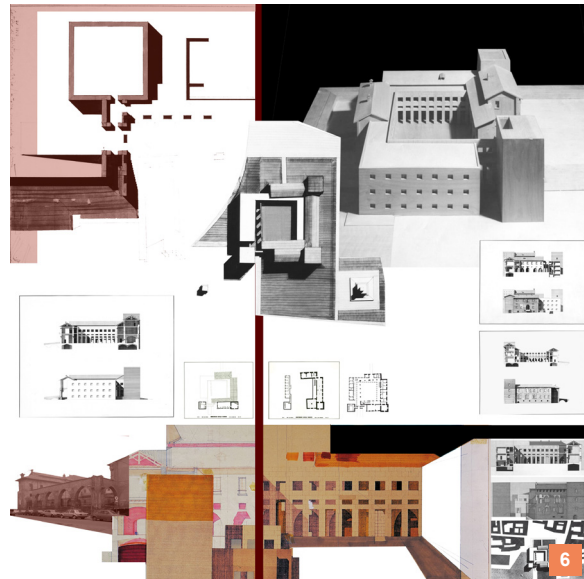
153 Exner, Koldighus Castle.



154 Bruno, Rivoli Castle.



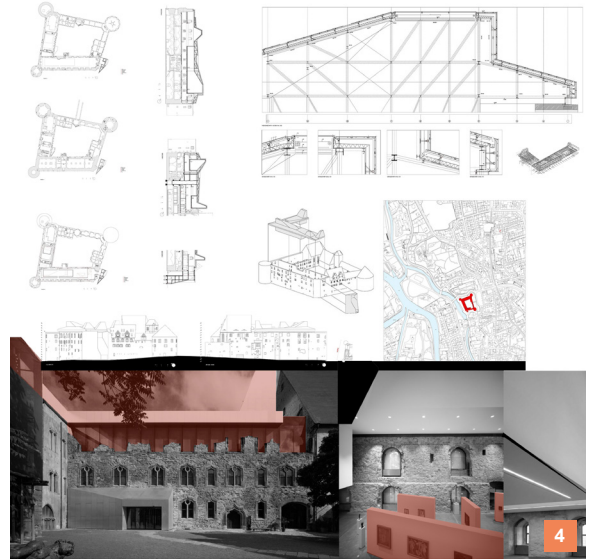
155 Giorgio Grassi, Sagunto Theatre.



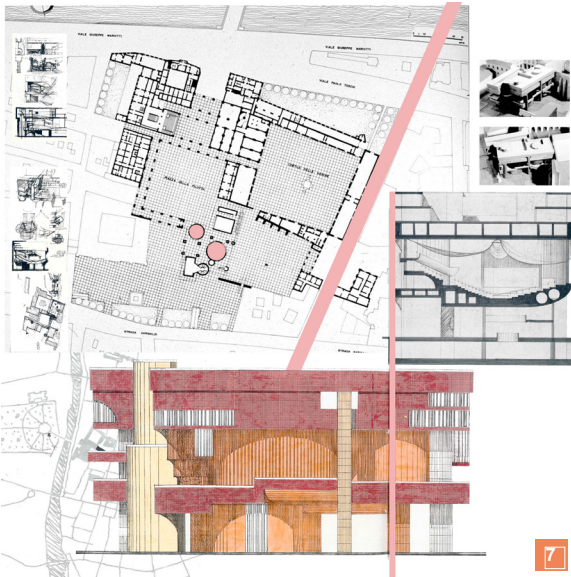
156 Grassi, Abbiategrasso Castle.



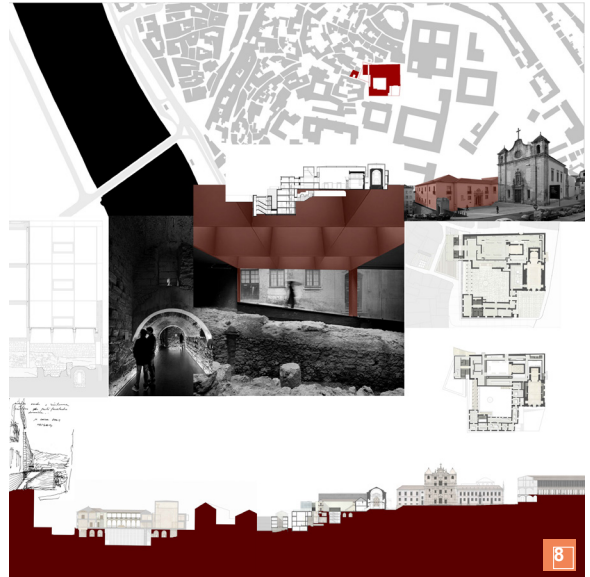
157 Herzog & de Meuron, Caixa Forum.



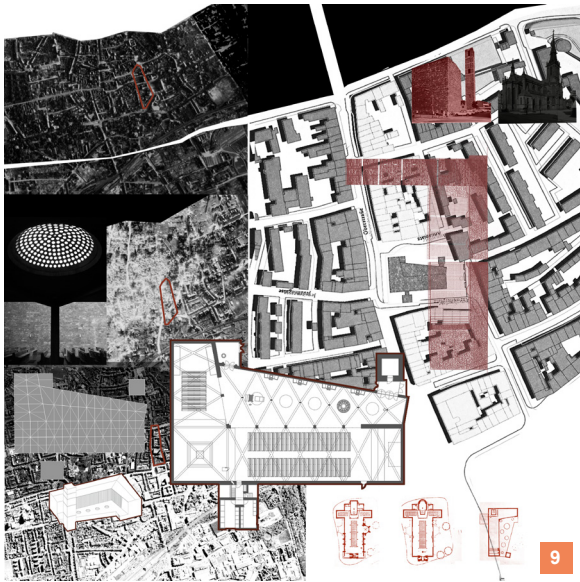
158 Nieto & Sobejano, Moritzburg Museum.



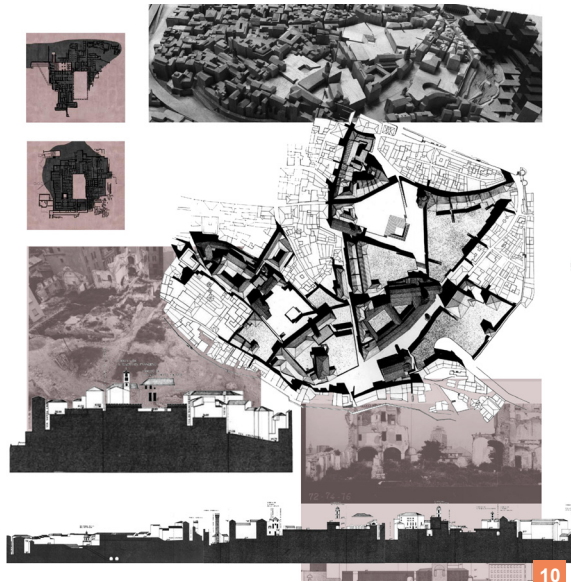
159 Carlo, Paganini Theatre, Parma.



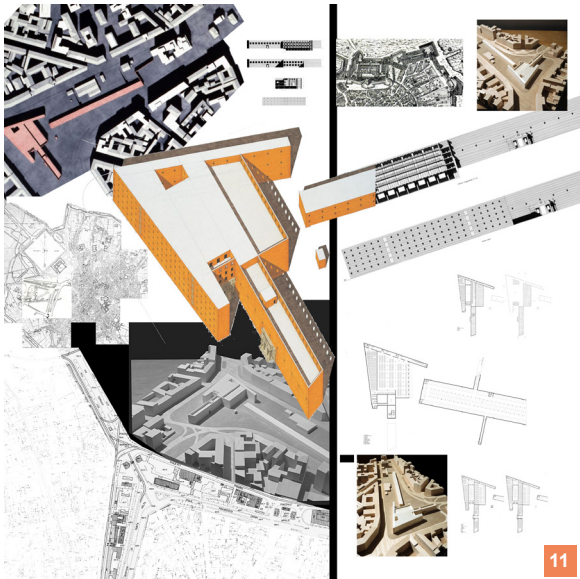
160 Byrne, Machado de Castro Museum.



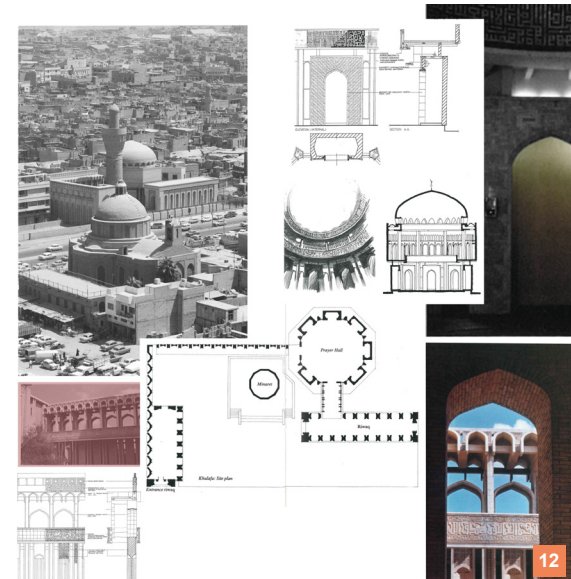
161 Maria Schwarz's, St Anna Church.



162 Bruno, Rivoli Castle.



163 Giorgio Grassi, Bastione di porta Volta.



164 Kulhafa mosque, Kulhafa mosque.

Urban Reconstruction

BEIRUT, LEBANON 1994 Competition Projects

After the civil war of 1975-1991 in Lebanon, but the souq was relatively far from the battlefield- Now it stays as the witness of the first stages of the war, acts like a collective memory. The souq developed here as a mosaic, mosaic of linear elements running along the northern southern axis.

Here the projects for the Competition 1994 for the Souq of Beirut developed by italian architects are discussed. The competition called for the reinterpretation of the souk, for the contemporary needs without the loss of memory .



Fig. 4.47 Project site for the competition of the reconstruction of Beirut's Souk, 1993.

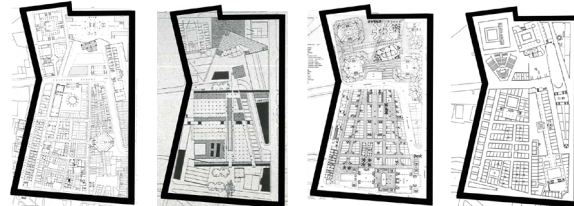


Fig. 4.48 Proposed plans for the reconstruction of Beirut's Souk, 1993, 1 - Rossi, 2 - Polesello, 3 - Semerani, 4 - Canella.

Rossi

Aldo Rossi used the typological approach – restoring the urban fabric with various degrees of modifications of the individual components. In his proposal the old street pattern is preserved and a number of the new landmarks are added, such as ziggurat tower. These new elements are like signature elements that create tension between the existing built environment. He treats the existing urban patterns and typologies not like replicas but like the field for the re interpretation of them.

Polesello

The project of Polesello 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. Polesello re-proposes, evokes and sometimes invents these signs.

He is inspired by the design of Piranesi, in which the different parts (city-planimetry and architecture-plants) have different scales “as if it were a question of using different station points to see two problems and two different scales within which a single “thing”, a single architecture. The souk complex is designed according to the principle of orthogonal geometric order that can exist independently of its uses, and the “accidental” elements that characterize the souk. The parts of the new city must be marked by new and absolute forms, establishing a new sign and symbol.

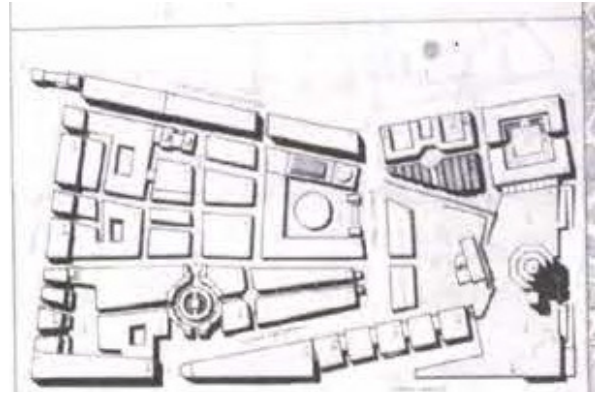


Fig. 4.48 Aldo Rossi, masterplan for the reconstruction of Beirut's Souk, 1993.

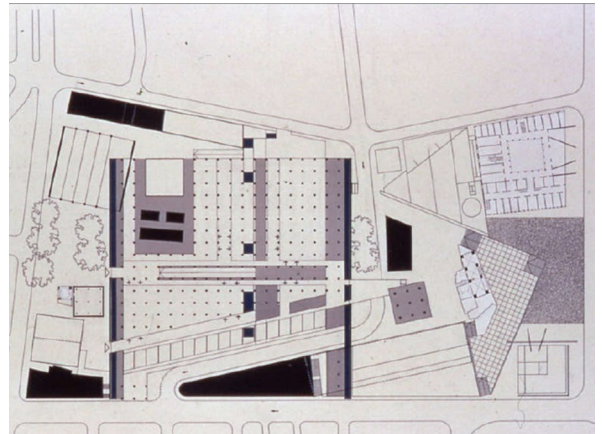


Fig. 4.49 Gianluigi Polesello, plan for the reconstruction of Beirut's Souk, 1993.

Semerani

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

Canella

The same concept of a critical interpretation can be observed in the project proposed by Guido Canella. The plant resumes the trend of the pre-existing structure that is obtained by the repetition of the original layouts of the souks as an ordering element of the project. Within the building typologies, facades, covers that are trying to be 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 and souk.

The Jamil souks, al Tawili, ayass and the existing buildings of the Arwan souk are preserved while the new hybridized typologies are introduced- the first typology represents a building that is linearly arranged along a partially covered pedestrian path, while the second consists of a three-storey body covered by pitched roofs that is arranged on a large elongated court. The attempt was to balance the composite potential of commercial activities through the linearity of the souks, to its uniqueness and specialization, by hybridization of the main typological invariants.

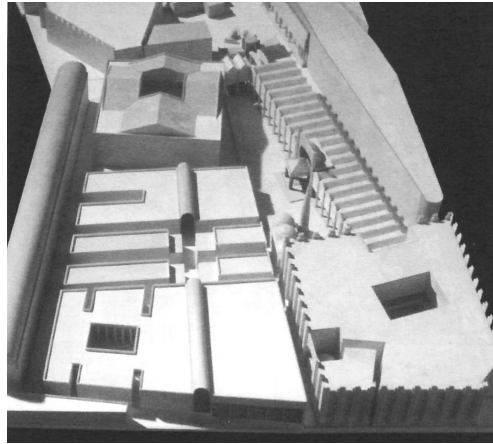


Fig. 4.50 Luciano Semerani, physical model of the project for the reconstruction of Beirut's Souk, 1993.

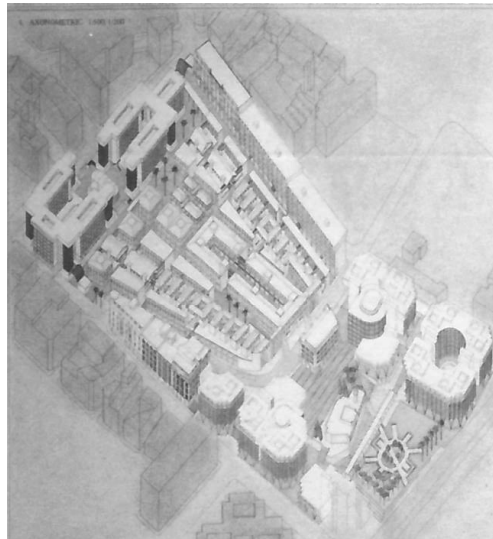


Fig. 4.51 Luciano Semerani, physical model of the project for the reconstruction of Beirut's Souk, 1993.

New Constructions Read As Urban Reconstruction

NEW GOURNA, EGYPT 1952 Hassan Fathy

The old Gournā 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 Gournā 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 Gournā into a harmonized social structure devoted to folk art and surrounded by appropriate architectural settings. In the designed plan there is an 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 unplanned villages in the region.

The identity of the New Gournā is related to similar villages and settlements in the region, however, it possesses its own character. The planning intentions of Fathy were to use locally available materials and techniques, which imparts a vernacular character to the place's architecture but also promotes its sustainability, resistance to climatic extremities and economy.

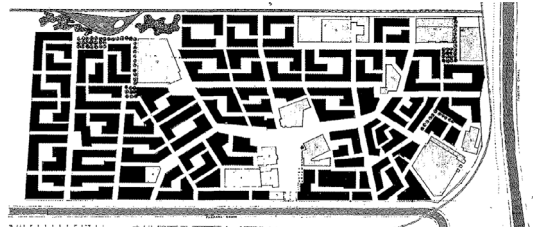


Fig. 4.52 New Gournā, masterplan by H. Fathy, 1948.



Fig. 4.53 New Gournā, masterplan implementation by H. Fathy, 1948.

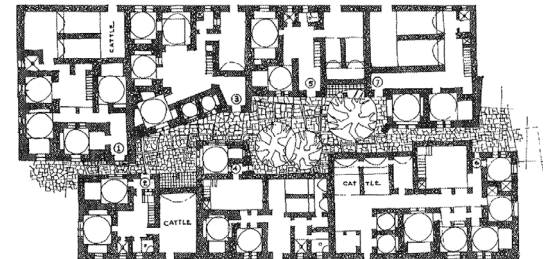


Fig. 4.54 New Gournā, village street with broken vistas by H. Fathy, 1948.

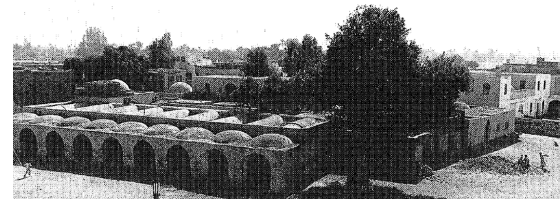


Fig. 4.55 New Gournā, the village outskirts.

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. 4.56 New Baris, masterplan by H. Fathy, 1965



Fig. 4.57 General view of the Souq



Fig. 4.58 Cells of the Souq

DIAR ES SAADA, ALGERIA 1953-54 Fernand Pouillon

The complex implantation is along a main axis of perspective. This axis is generated by an angle of 54° related to the crossroads of the ridge path (According to Sayen (2014))

The development is divided into upper and lower parts by an “S” crossing the entire field following the contour lines. (figuar X) It allows on one side, to solve the problem of mechanical accessibility to the buildings, having regard to the irregular shape of the land. On the other hand, participate in the organisation of the ground plan while being economical in earthwork (Sayen, 2014). All buildings of the housing estate are either perpendicular or parallel to the axis. With a single dominant orthogonality and different buildings from each other, it produces sequences of spaces varied both by their plan configurations and by the created voids.

The ground plan much favoured by the modern movement architect who followed the Athens Charter 1933, is based on a horizontal vision of space, an aerial view. According to Pouillon, architecture is viewed by pedestrians and not by aviators. This means that the composition of urban spaces should refer to the height of the human eye, which embraces the architectural object by surrounding it. This is an interpretation of Choisy’s lesson on the Acropolis of Athens. He discovered that, to understand the arrangement of the buildings, we must look at the complex through the viewer’s eye: everything is arranged in relation to him by following viewing angles.

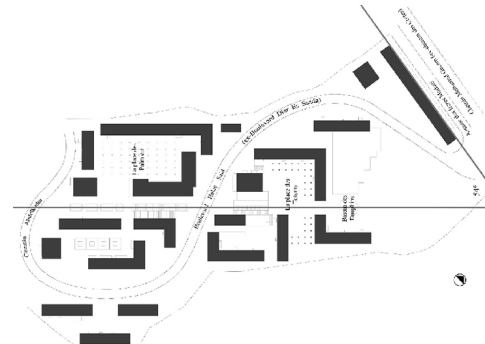


Fig. 4.59 Overall Model

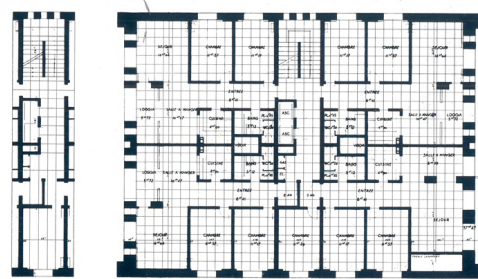


Fig. 4.60 Masterplan. 1) Apartment Interior. 2) Apartment Prototype. 3) Apartment Prototype



Fig. 4.61 Masterplan. 1) Apartment Interior. 2) Apartment Prototype. 3) Apartment Prototype

DIAR EL MAHÇCOUL, ALGERIA 1955-56 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 figure X

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 (Fig. 71). The market of the confort normal area again uses the arch to mark its difference from the residential functions, but here the arch is less accentuated, less “vernacular”; it is a stylized low arch that sits on an orthogonal arcade. 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.

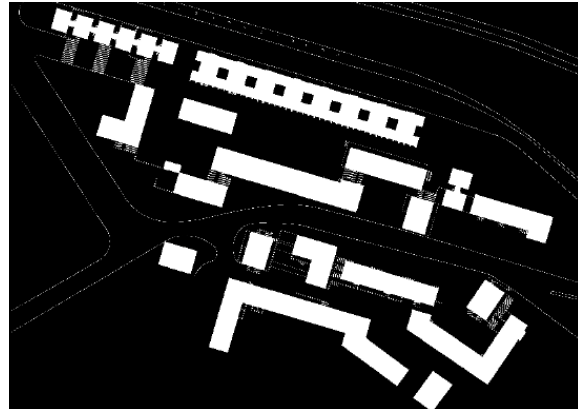


Fig. 4.62 Master plan.



Fig. 4.63 The Market and the upper square.



Fig. 4.64 Detail of the building that separates the two squares.

CLIMAT DE FRANCE, ALGERIA 1955-57 Fernand Pouillon

Climat de France, intended for the population of most marginalized Muslim, and exemplary for various reasons. a complex of public housing that for the first time benefits from such thorough research of quality, highlighted, among other things, from: a) the choice of land, in slope, in a remarkable position on the sea; b) the general articulation set on two orthogonal axes, the one, identified by the series of stairways departing from the located mosque at the top of the composition, which leads to the lower part of the complex, at the end of which a cornering building seems to contain the whole as a dam; the other represented by the large square monumental, of incredible proportions, which is the main stage of the city; c) the breakdown in distinct neighbourhoods, structured in streets and squares dotted with towers; d) the diversity and consistency of structures of the buildings, built always on the alignment of a street or a square in the way to get open perspectives in direction of the sea, defined by buildings linear with or without internal courtyard, from blocks to a courtyard, from connected bodies, by a succession of buildings joined between them framing the view of the sea, or from towers, while the square monumental and equipped with a front exterior closed like a fortified enclosure, and a double internal skin consisting of a brick facade connected to a stone colonnade from a succession of terraces; e) the identification of the routes main by monumental stairways, of doors related to the sea of the single building and of the whole neighbourhood, and hypostyle halls.



Fig. 4.65 Master plan

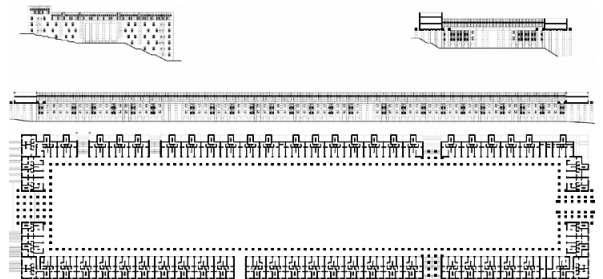


Fig. 4.66 Climat de France, drawings of 200 columns



Fig. 4.67 general view of 200 columns

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 the 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.”¹

Moreover, before addressing the reconstruction projects it is essential to identify the meaning of the word 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 times. 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. As such, 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 the ability of them to maintain and emphasize the historical value of an artefact by means of various physical interventions.

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 ruined castle but intact to it in the **sheet 01 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 a 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

¹ Rogers, E. N. 1958. *Esperienza dell'Architettura*, 2nd ed., Milano: Skira, pag. 254.

the visitors, guising 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 ruins themselves and allow them to narrate their story was taken by Andrea Bruno in his work for Rivoli Castle illustrated in **_sheet 02 Rivoli Castle**. Following the concept of “leaving the castle in its unfinished situation of its own” Bruno places 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, installed the panorama that cuts out from the great brick wall of the Castle, as well as the walkway over the great vault of room, putting the past and the present in a strong dialogue. In Rivoli, the historic building and contemporary forms interact together, while the frescoes dialogue with the work of contemporary artworks exhibited in a castle.

A more brave but no less delicate solutions are shown in **_sheet 03 Caixa Forum & _sheet 04 Moritzburg Museum**, where the architects placed a new modern large-scale construction within the perimeter of ruined walls of the original building, that serve as the guideline and rule for these modern additions. In both cases the angular modern geometry of the new structures contrasts with original existing shapes. immediately from the first look to the facade a viewer can read a clear message that is being conveyed by the architects - the history goes on. The new fragments added to the buildings continue the process of changes that feature in the story of the edifice.

A different progressive strategy to intervene an architectural artefact is characterised by the physical expansion of the original structure, the alteration of its initial plot and shape. However, “progressive” does not intend to mean to “abandon” history but to be “transformative”, bring the meaning of new ideas, findings and opportunities and to keep alive the historic value, read it, understand it and interpret it.

In fact, history is a part of 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 05 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.² 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 theater shows us that symmetry plays a crucial role in a Roman architecture: the U-shaped scene fronts, niches, staircases etcetera are positioned in a symmetrical

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

layout. So, the frequent use of symmetry in here is not coincidentally 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 particular case of **_ sheet 06 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 in an architectural terms, but also for the optimal functioning of the town hall offices. The historic essence of the castle is still preserve - 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.

To take a further look to the expansion by adding new volumes to the pre-existing structures we address the project by Aymonino for Paganini Theatre and the project by Byrne for Machado de Castro Museum, discussed in **_ sheet 07 Paganini Theatre & _ sheet 08 Machado de Castro Museum** respectively. The new added volumes here, that are positioned on different levels, are visually “pure” and “clear” elements, that let the viewer to easily read the overlaps of historic and modern. The new volumes respect the existing structures and adapt to the existing layout of the urban settings: in Paganini Theatre the upper floor corresponds to the same perimeter of the arcade on the ground floor and to the two urban alignments, in Machado de Castro Museum, where the new volumes were meant to correct the rupture

of scale between the modern and historic parts of the city.

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 09 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 10 Faculty of Architecture** we see the plan of the only realised portion of the project, that is placed as a connecting link in a chain which 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».³ Proposal by Grassi that is also intended to act as the link between old and new is shown in **_ sheet 11 Bastione di Porta Volta** where the new

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

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 12 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. ⁴

The project goes in correspondence 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 treatment 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.

⁴ 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.

List of Cases

Architectural Reconstruction

Intervention on Buildings

Exner, Koldighus Castle
Bruno, Rivoli Castle
Herzog & de Meuron, Caixa Forum
Nieto & Sobejano, Moritzburg Museum
Giorgio Grassi, Sagunto theatre

Building Expansion

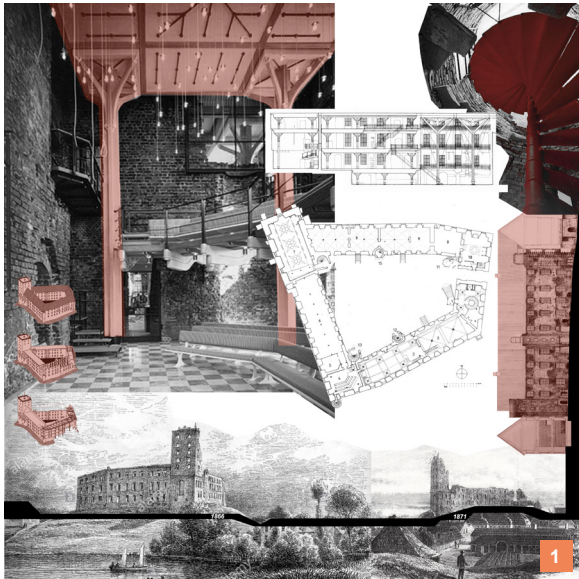
Giorgio Grassi, Abbiategrosso Castle
Carlo Aymonio, Paganini Theatre
Byrne, Machado de Castro Museum
Maria Schwarz's, St Anna Church

New Constructions

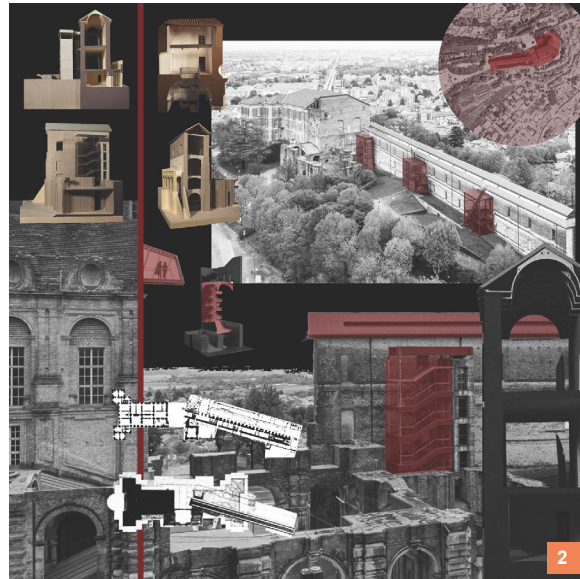
Ignazio Gardella, Faculty of architecture
of Genova
Giorgio Grassi, Bastione di porta Volta
Mohamed Makiya, Kulhafa mosque



Fig. 4.68 Map locating the case studies.



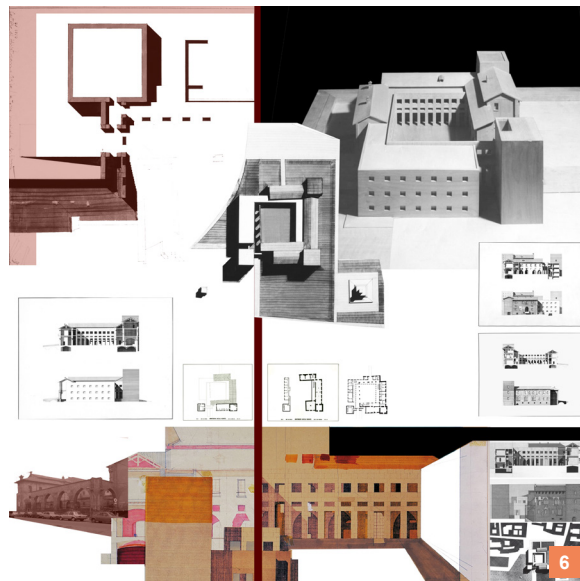
187 Exner, Koldighus Castle



188 Bruno, Rivoli Castle



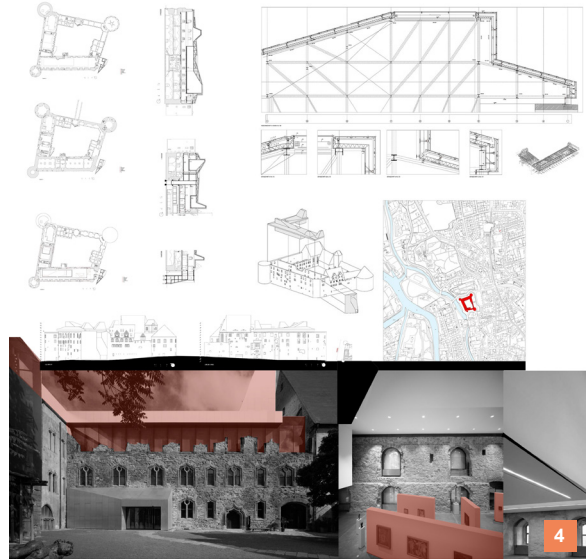
191 Giorgio Grassi, Sagunto Theatre



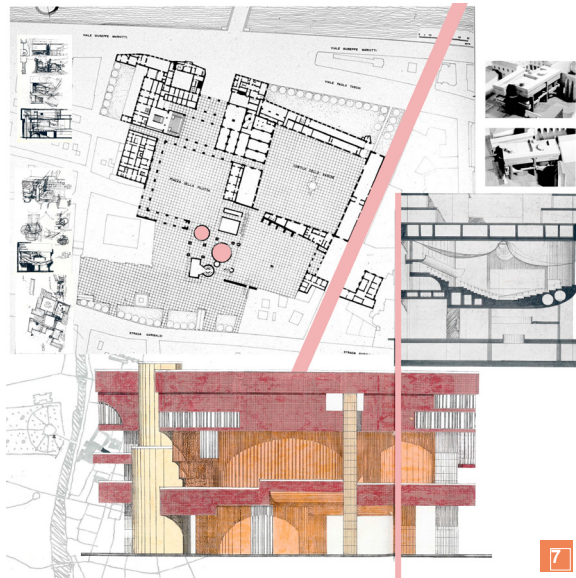
192 Grassi, Abbiategrasso Castle



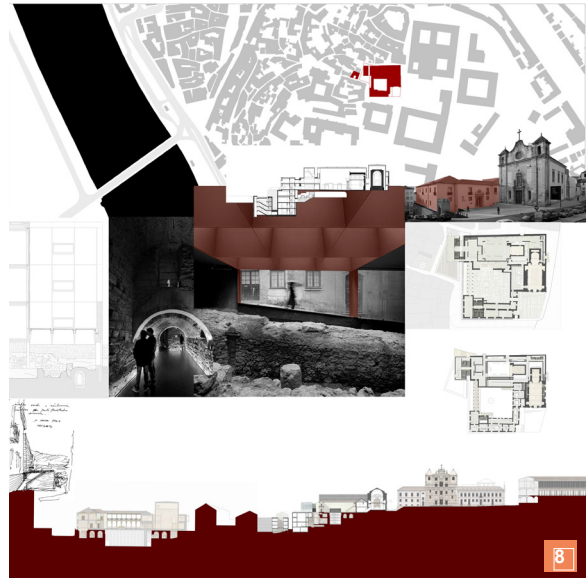
189 Herzog & de Meuron, Caixa Forum



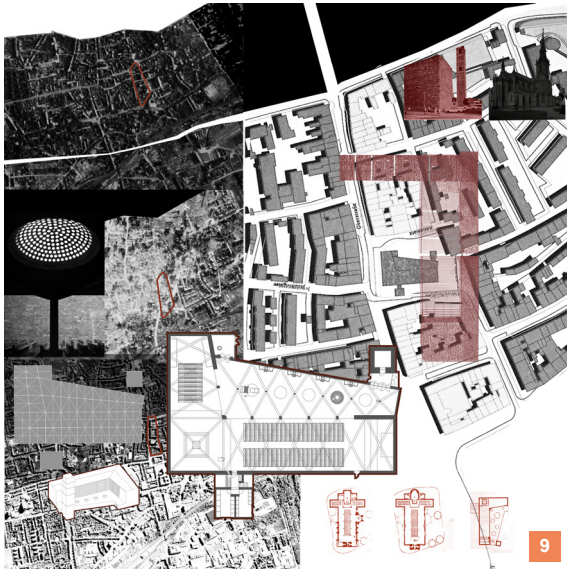
190 Nieto & Sobejano, Moritzburg Museum



193 Carlo, Paganini Theatre, Parma



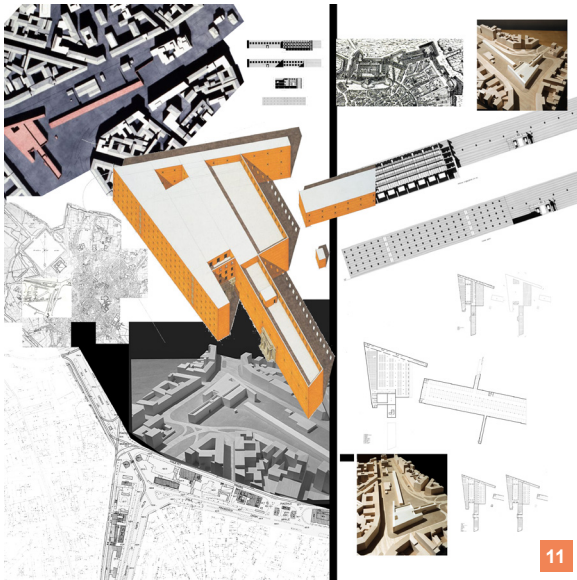
194 Byrne, Machado de Castro Museum



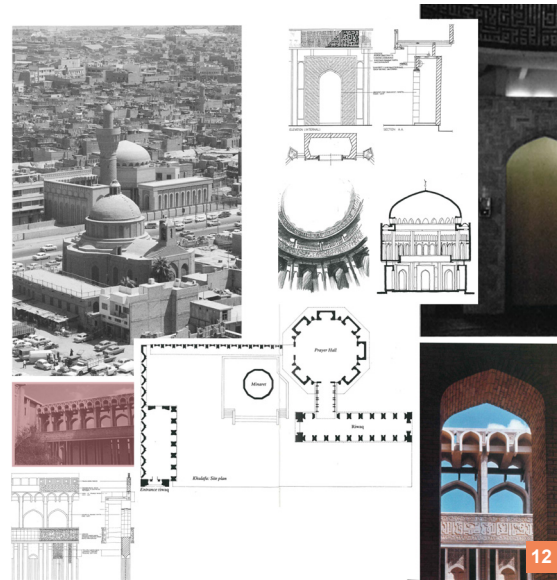
195 Maria Schwarz's, St Anna Church



196 Bruno, Rivoli Castle



197 Giorgio Grassi, Bastione di porta Volta



198 Kulhafa mosque, Kulhafa mosque

Intervention on Buildings

KOLDIGHUS CASTLE, JUTLAND, DENMARK 1984 Johannes Exner

Sometimes the historical trace of the preservation and conversion of building provide the strong identity of historic buildings. In this cases, no matter the 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 exhibit was Koldinghus itself, and the difference historical periods and events would have to be emphasized architecturally in the various parts of the building.

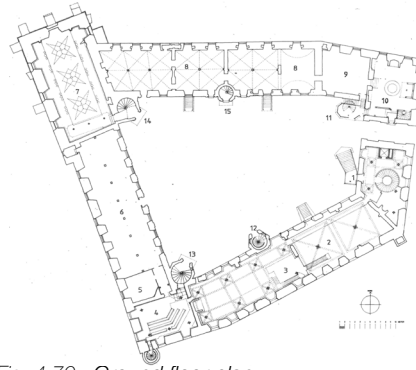


Fig. 4.70 Ground floor plan.

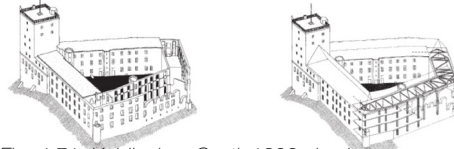


Fig. 4.71 Koldinghus Castle 1828 alzado

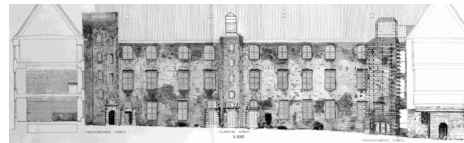


Fig. 4.72 Intervention on the existing structure.

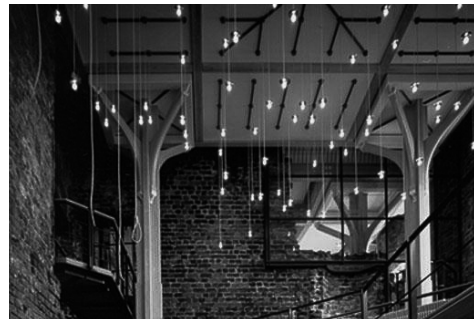


Fig. 4.73 View from interior seeing the material combination and untouched new structure.

CASTELLO DI RIVOLI, TURIN, ITALY 1960-present Bruno

The Castle was destroyed during a war and rebuilt by Juvarra during the 18th Century. With time, the Castle went to rack and ruin, and renovation plan started in 1960's, under the direction of Andrea Bruno. Led by the concepts of building recovery and reuse, of respect for the building had developed memory and the legacy of the past, of collaboration between public and private that allowed the actual recovery of the artifact. Bruno's work not only revitalized the Castello for the modern age but combined and elevated the designs of his predecessors. The long-unfinished atrium was not completed, but enhanced, introducing visitors to the structure's layered history before they even pass through the museum itself.

The goal of Bruno during this restoration plan, was to leave the castle as unfinished as Juvarra left it, leave the stones as if there were stuck in time, use materials that could give the impression of « reversibility » in order not to distinguish the actual man workshop from the former one. his restoration is a rare case of one giving back to the nuclei, it's original goal: an art gallery. The goal declared by Bruno was to “bring the building back to the unfinished situation of its own of the unfinished construction site of Juvarra, so that everything belonging to the past time was kept in his historical and artistic authenticity “. For instance, an elevator has been placed where a staircase was planned to be but never put under construction.

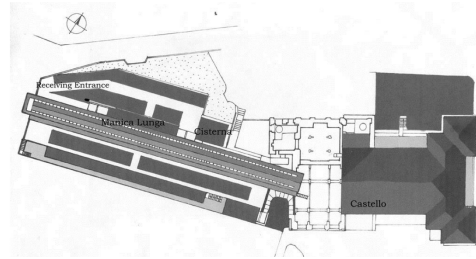


Fig. 4.74 Plan.

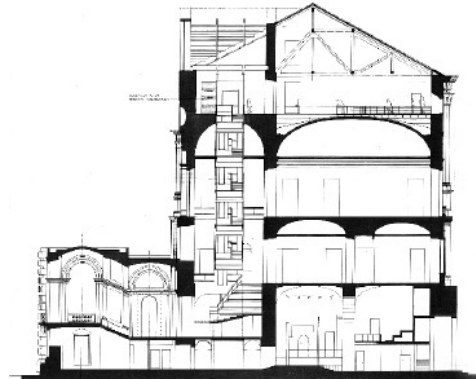


Fig. 4.75 Section.



Fig. 4.75 Exterior intervention.

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.

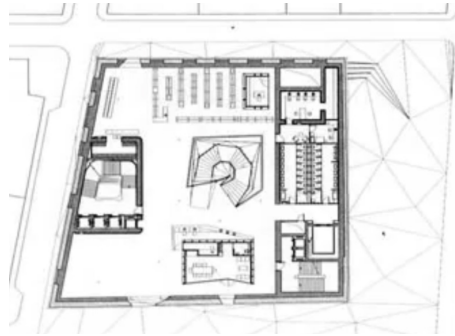


Fig. 4.76 St. Malo before the destruction.

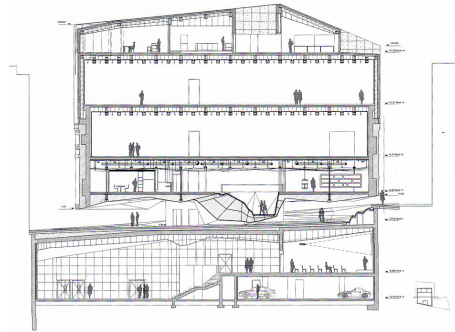


Fig. 4.77 Section showing the circulation for additional volume.

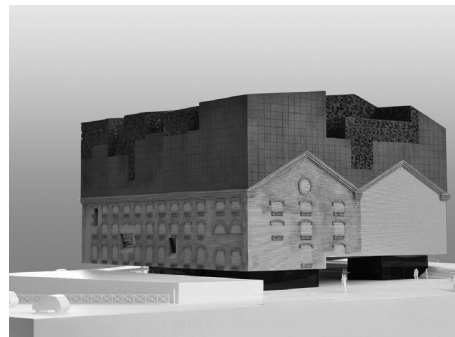


Fig. 4.78 Relationship of existing building and intervention

Moritzburg Museum, HALLE, GERMANY
2008 Nieto Sobejano Arquitectos

The ancient castle of Moritzburg in the city of Halle is a very valuable example of Gothic military architecture, typical of Germany at the end of the 15th century. Its turbulent history has inevitably been reflected in the many alternations it has undergone over the years. But despite these, the building still keeps the original structure of its main architectural features: the surrounding wall, three of the four round towers at the corners and the central courtyard. The partial destruction of the north and west wings in the 17th century during the Thirty Years War left the castle with the image of a romantic ruin which it has kept over the centuries to today. Except for a stillborn project by Karl Friedrich Schinkel in 1828, until now no integral work has been planned to alter and enlarge the ancient ruin for the art museum housed there since 1904. A very notable collection of modern art - mainly of German Expressionism - that includes works painted by Lyonel Feininger in the city of Halle has now been enlarged with the Gerlinger donation, one of the most valuable private collections of the Die Brücke Expressionist group. Nieto Sobejano Arquitectos's design for enlargement is based on a single and clear architectural idea. It involves a new roof, conceived as a large folded platform, which rises and breaks to allow natural light to enter, and from which the new exhibition areas hang.

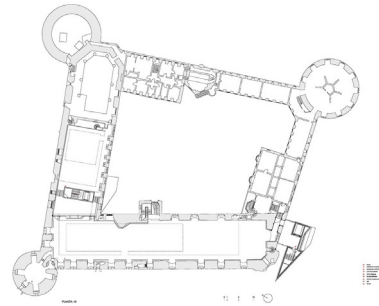


Fig. 4.79 Ground floor plan

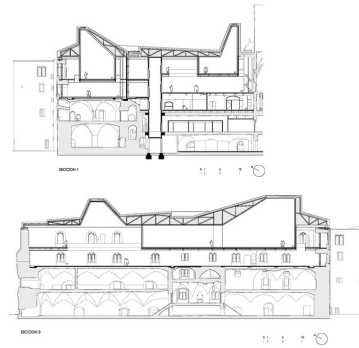


Fig. 4.80 Munster 1945 after the destruction



Fig. 4.81 View showing the dialogue with the historical elements

Building Expansion

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]’.

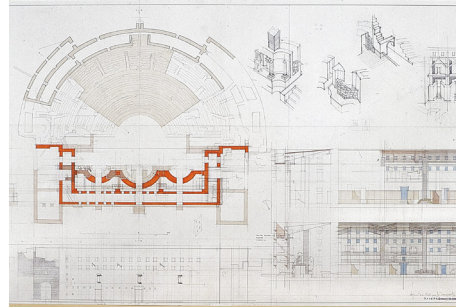


Fig. 4.82 Sketch by Grassi.



Fig. 4.83 Section and Elevations.



Fig. 4.84 View from theatre.

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.

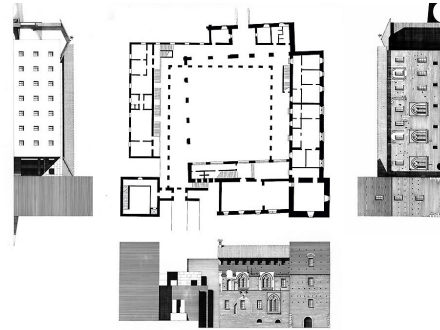


Fig. 4.85 Sections and plan.

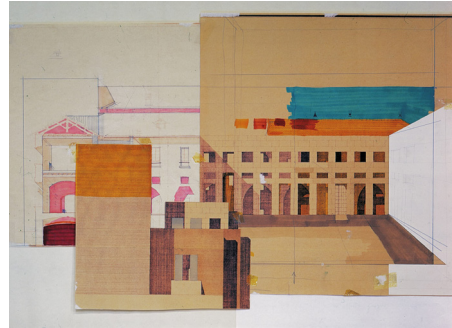


Fig. 4.86 Sketch of composition idea.

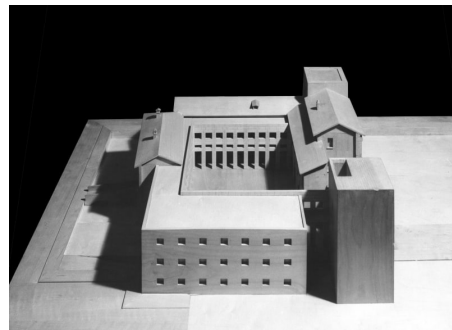


Fig. 4.87 Model.

PAGANINI THEATRE, PARMA, ITALY
1964 Carlo Aymonino

Competition opened in 1964 with the aim of recovering the Reinach theater, later Paganini, which was destroyed on 13 May 1944 following a bombing.

The development of the project follows logical phases that start from the urban study of the pre-existing city up to the reconstruction of the two public squares (Piazza della Pilotta, Cortile delle Vasche) and a theater that performs several functions, from opera and comedy to various shows. The project was born on two alignments: Pilotta and Prefettura, in whose superimposition there is the theater, several rooms and a picture gallery.

The areas are developed on different heights in order to create a continuous path between the various public spaces, similar to that obtained on the ground floor.

The volumes of the building were designed structurally and visually as “pure” elements, easily reading the successive overlaps on the facade. 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. The main purpose of this doubling is to give the internal square.

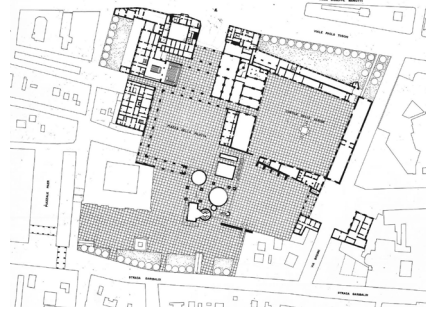


Fig. 4.88 Plan.

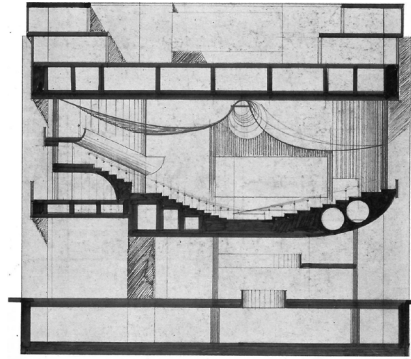


Fig. 4.89 Sketch of the section.

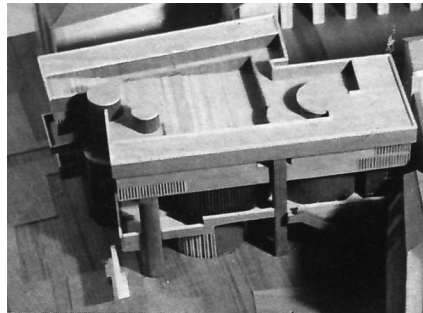


Fig. 4.90 Model showing the volumetric idea.

**MACHADO DE CASTRO MUSEUM,
COIMBRA, PORTUGAL
2004 Byrne**

The National Museum Machado de Castro (Museu Nacional de Machado de Castro) is an art museum in Coimbra, Portugal, named after the renowned Portuguese sculptor Joaquim Machado de Castro. It first opened in 1913 and its latest renovation (2004-2012), which included the addition of a new building, was awarded the Piranesi/Prix de Rome Prize 2014.

The National Museum Machado de Castro is a place of intense sedimentation and historical superimposition over two millennia where lies the Roman Forum Aemininum, the Romanesque church of S. Jo de Almedina, the gallery of Terzi. The lucid acceptance of contemporary criticism of these sequences, whence the constant mingling of “container” and “content”, is the primary feature of the project in order to correct the rupture of scale and historical context caused by random juxtapositions: two elemental volumes define a flooded neutral space, illuminated by diffuse light to show the temporal sequence of the fragments of the 18th century apse of the Tesoureiro Chapel.

The gallery occupies the entire volume of the trapezoidal shape, rising to four levels and creating a platform (the terrace of the restaurant) where it lays the rectangular volume of transparent and translucent glass that at night becomes a sort of lantern light. The lower volume adapts to the existing layout of the streets, the stone cladding is not mimetic, but consistent with the solid matter of the surrounding buildings

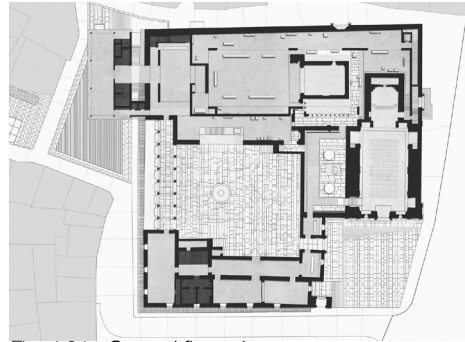


Fig. 4.91 Ground floor plan.

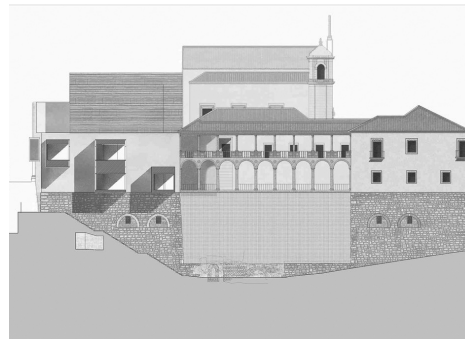


Fig. 4.92 South elevation.



Fig. 4.93 Street view.

New constructions

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 following 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.

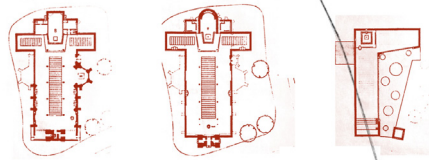


fig 4.95 3 attempts



fig 4.96 The orientation of the church

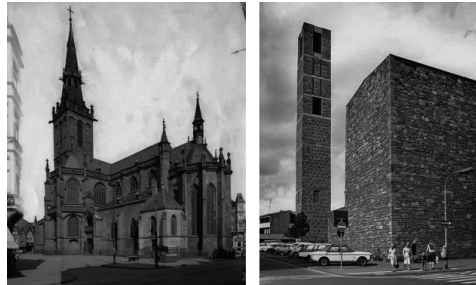


fig 4.97 left: old church, right: new church



fig 4.98 Interior view seeing the cupola

**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, René Clément's film camera follows the black and white fresco, often in controlee, 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 2, 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 city that emerges from the report of Gardella's surveys (1969-70) is a far cry from the Neorealist hues, transformed by the gaze of the architect. The photos by Gardella and his collaborators are operative instruments for the project.

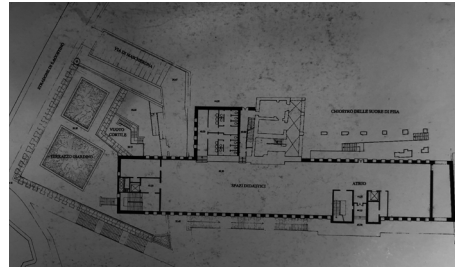


Fig. 4.99 Plan at level +44.20.

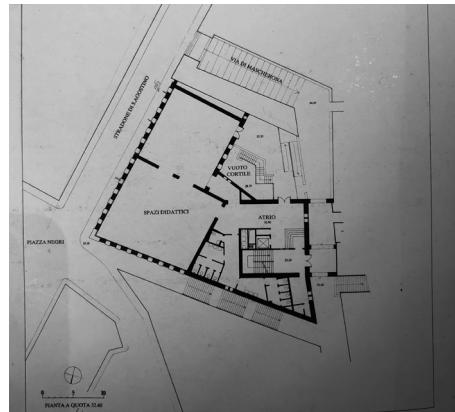


Fig. 4.100 Plan at level +32.40.



Fig. 4.101 South elevation.

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.

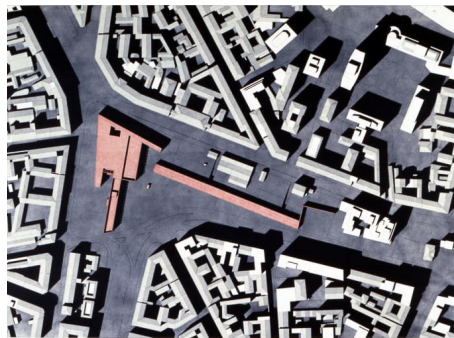


Fig. 4.102 Site plan.

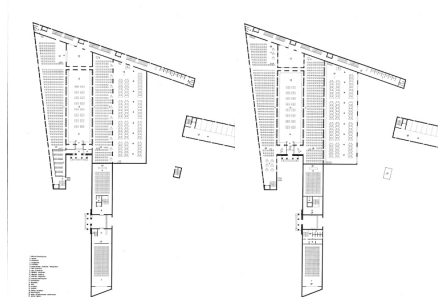


Fig. 4.103 Ground floor plan.

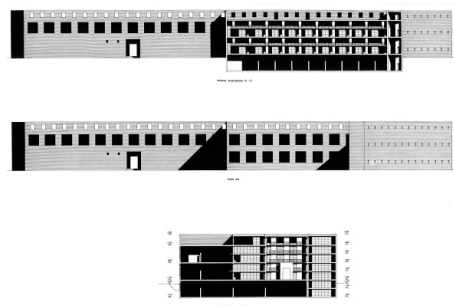


Fig. 4.104 Section and elevations.

KULHAFI 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 similar argument 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.

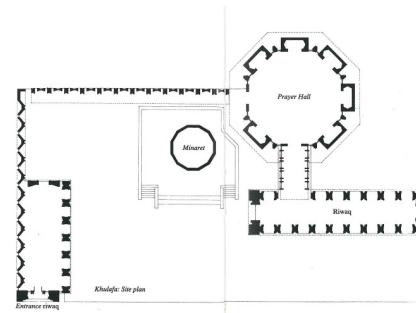


Fig. 4.105 Khulafa Mosque, site plan.

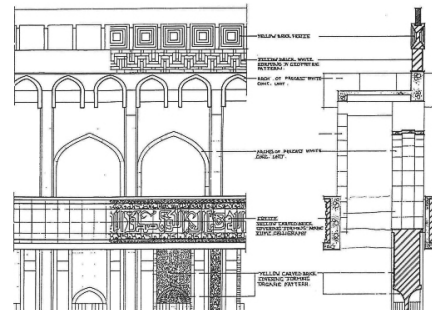


Fig. 4.106 A symphony in brickwork.



Fig. 4.107 Khulafa Mosque, 1963: Overlooking old Baghdad in the 1960s, with the Latin Church in the foreground.

05

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Project Proposal

Reconstruction of the Al Nouri Mosque complex as signal of resilience and hope



History of the Al Nouri Mosque Complex

The Al Nouri Mosque Complex was founded by atabeg ruler Nur al-Din Mahmud Zengi during his visit to Mosul in 566 AH/1170 AD. Its construction was completed in just two years (Al-Diwahji A, 1949 and Tabbaa Y, 2002). Located in the northeastern sector of the Old City of Mosul, the complex is surrounded by traditional courtyard dwellings. Historical studies indicate that the mosque complex and its Prayer Hall were originally established on a wide ruinous land at the centre of Mosul's market area, directly chosen by Nur al-Din, as the area to erect the second congregational mosque of Mosul. Historical sources refer to the construction of a madrasa, a school, connected to the building of the Prayer Hall, but with no clear information about its possible location within the complex's area. Although the Al Hadba Minaret does not bear any inscription pertaining to its origins, the majority of scholars assign it to the same time, thus between 1170 – 1172 AD. Nothing is known about other buildings erected as part of the complex at that time.

Approximately Friedrich Sarre and Ernst Herzfeld documented both the Complex and the Prayer Hall in 1911 and drew their first recorded plans. (fig 5.1) In their book, *Archaeological Journey in the Euphrates and Tigris Region*, they describe extensively the entire complex and attempt a chronological sequence of events for the Prayer Hall.

The Al Nouri Mosque Complex was accessed through three entrance gates, as it transpires

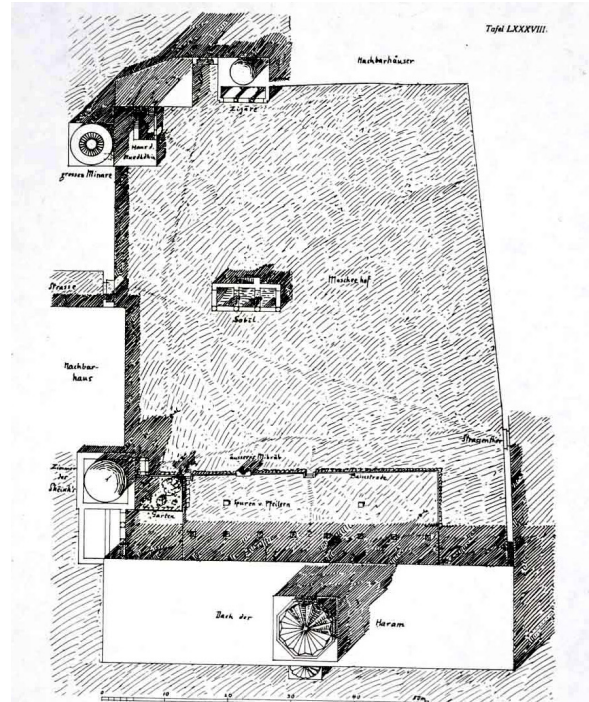


Fig. 5.01 Layout plan of Al Nouri Mosque Complex and layout plan of the Prayer Hall at the beginning of the 20th century, 1920.

from Herzfeld's plan: one eastern entrance closer to the Prayer Hall, accessed from a street on the east; one western entrance almost midway between the Prayer Hall and the ziyarah, accessed from a narrow street to the west; and a northern narrow access between the ziyarah and a building with an unknown function, accessed from a street on the north of the Complex.

In 1925, the Sunni Endowment planned to undertake works on the overall Complex. This is when the rectangular ablutions building reported by Herzfeld, was demolished and substituted with a hexagonal edifice. It also turned a part of the courtyard into a garden and equipped it with fences. As part of the same intervention, a new access road was opened on the northeast and most importantly, the houses on the northeastern side were incorporated in the perimeter of the complex, with the intent of relocating inside them the residents of the houses abutting the Prayer Hall on its south. The houses on the south side were demolished at a later period, probably in 1944.

The Sunni Endowment made several transformations to the site between 1940s and early 2000s, which led the Complex to the configuration it had immediately before the 2017 destruction.

Between 1945 and 1950, when the Prayer Hall was entirely rebuilt, works on the overall Complex were also undertaken. These included especially demolitions of some pre-existent buildings, such as the Shaykh Al Nouri's residence, the ziyarah and the houses on the south side of the Complex.

The building connected to the Minaret on its south side was demolished and rebuilt several times to new designs until being completely demolished between 1979 and 1981. Although not part of the present competition project, it is worth mentioning that during this time, the Al Hadba Minaret suffered its most important transformations. Other works inside the Complex saw the construction of

public toilets and ablutions buildings on its north and west sides. In addition, the structure of the hexagonal shaped ablution was reinforced by adding a new concrete structure around the old one. The courtyard was paved, and it received a storm drain system, the garden was modified, enlarged and a summer praying area was created. New fences were also built.

At the end of the 1990s, the Sunni Endowment started planning a possible expansion of the Al Nouri Complex beyond its original perimeter. This plan of expansion entailed the acquisition of properties all around the Complex, a plan only partially commenced due to the unstable security situation that the country was going through during that period.(fig 5.2)



Fig. 5.02 North west view of the Al Nouri Mosque.

The Value and Significance of Al Nouri Mosque

It is often said that historical Islamic cities are unordered or unplanned, being the result of natural growth and development. However while this may be true in the case of the living quarters, the construction of the main important buildings were intentional acts, deliberately and carefully chosen by the city's rulers and Islamic endowments. Since its construction, the Al Nouri Mosque was invested with great significance, being the city's Great Mosque (Djami al Kabeer). This justified Nur ad-Din Zengi's choice for the placement of the mosque at the geographical heart of the city. The Al Nouri Mosque, since its construction in the second half of the 12th century AD, has constituted a core site in the urban life and development of the Old City of Mosul.

In fact, looking at the historical transformations of the city over the centuries, it appears clear how the complex can be classified among those 'main monuments' influencing the different street layouts. Before the 20th century interventions, the street layout of the Old City was characterized by a system of streets moving from the gates and heading to the Al Nouri Mosque. This system was interwoven with another network of streets which were heading from the various quarters to the river and to its south-eastern part, proof of the great importance that both Tigris River and commerce played FIG. 43 in the existence of the city. Along these main lines, most of the religious monuments were erected over the centuries. These buildings acted as orientation points, landmarks inside the city's labyrinthine streets, some of them becoming urban symbols. Before recent conflict,

the visitors strolling on Niniveh Street (main east-west artery of the Old City) were guided by the presence of two of the city's most important landmarks dominating its skyline, the bell tower of the Al Saa'a Church (Our Lady of the Hour) and the minaret of Al Nouri mosque (Al Hadba). The Minaret is not just a symbolic landmark for Mosul but rather for Iraq itself, appearing for example on its 10,000 Iraqi Dinars bill. Its tilt was Mosul's defining feature.



Fig. 5.11 The minaret of the Al Nouri Mosque.

In 2014, Daesh rushed to hoist its flag on top of the Mosque's Minaret, and its leader proclaimed from its Prayer Hall the "new caliphate". When the group tried to destroy the Minaret for the first time, a human chain made by Moslawis, who risked their own lives, impeded the destruction. The final blow happened in 2017 during Daesh's retreat, when the group rushed to detonate a series of explosives inside the minaret and the Prayer Hall.

Rebuilding Mosul's beloved Minaret and reinstating the Al Nouri Mosque to its rightful place as the main mosque of Mosul should not be seen only as a physical reconstruction, but as a symbolic act of revival and rebirth. The reconstruction of Mosul's landmarks aims at reinstating a sense of belonging and identity to all Moslawis, and the traditional spirit of Mosul, a place of multicultural creativity, peace and prosperity.



Fig. 5.2.2 The intervention for protecting destroyed Al Nouri Mosque.

The Current State

The state of the mosque was quite critical after the bombing. The floor and many of the remaining elements were extremely weakened and the local authorities feared that any more fragments could fall. The central dome especially was and remains the subject of many concerns.

The United Arab Emirates, the UNESCO, Iraq's culture ministry, and the International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM) understood the emergency of the situation and raised funds to launch a reconstruction project for the mosque. The institutions aim for a reconciliation of the community and the return of the peace. The workers solicited on the site are mainly locals and large safety measures have been required to protect them from any accident.

“All the technicians and workers employed in the project were Iraqi and a large part of the manpower used was recruited in the area adjacent to the site, to involve the local population in the activities and also make a direct contribution to the economic recovery of the old town of Mosul so hard hit by the recent war events.”¹

After the conquest, most of the masonry was damaged or destroyed. The Eastern wall was completely exploded and the fragments were dislocated and could not be reused. The stairs also suffered and collapsed. On the parts that remain standing, most of the cladding are damaged.

¹Stefano De Vito, Execution of Temporary stabilization measures at the Al Nouri Mosque complex, January 2020

It is difficult to evaluate the integrity of the remaining parts as a majority of the walls have been affected by cracks, rotations, and displacements.

After the end of the war, the institutions started immediately to clean the rubbles, identify and survey the fragments and the remaining walls, and stabilize them. Safety was the first concern as explosive machines have been discovered in the ruins. The floor tiles also have been collected to be reused, together with the columns stones and decorations. All the valuable archeological debris has been stored in a warehouse in the courtyards of the mosque on metal shelves covered with nylon to avoid the action of rain and sun.

The mihrab wall is partially falling apart and the original decorations covered by a more recent plaster layer are now visible. These painted and sculptured patterns were covered during the successive renovations.

The UNESCO organized the evacuation of the rubbles surrounding the buildings and obstructing the adjacent accesses. Many of the fragments accumulated after the explosion of the surrounding buildings. A sophisticated temporary wooden structure has been established to stabilize the remaining arches that show some instabilities.

Some wooden foothills also have been installed against the base of the dome to help to support the weight.



Fig. 5.21 Al-Nouri Mosque After the Conquest



Fig. 5.22 Al-Nouri Mosque After the Conquest

The destroyed concrete cover hanging on the East of the dome was removed and polypropylene bands were installed on the domes and around the columns. Working in tension the straps help to prevent the cracks of the dome to expand. This required the use of a large quantity of material and in particular timber, in addition to the use of an adequate number of workers.

Another important topic was water management and the evacuation of the rain. Many infiltrations have been observed compromising the painted ornaments of the central spaces. The UNESCO created protection of the upper terrace and the northwest corner and a drainage system to prevent future water damages. The largest gaps in the masonry were filled with concrete, especially on the Eastern side.

In 2021, a competition was launched by UNESCO for the reconstruction of the mosque complex. The guidelines required an identical reconstruction leaving the design teams the task to balance their approach.

The Project of the Al-Nouri Mosque Complex

The Al Nouri Mosque has always been an iconic landmark for the Old City of Mosul, recognized by the local community as a tangible manifestation of its cultural identity. The Al Nouri Mosque Complex was founded by atabeg ruler Nur al-Din Mahmud Zengi during his visit to Mosul in 566 AH/1170 AD. Located in the northeastern sector of the Old City of Mosul, the complex is surrounded by traditional residential fabric made by courtyard dwellings.

Historical studies indicate that the mosque complex and its Prayer Hall were originally established on a wide ruinous land at the centre of Mosul's market area, directly chosen by Nur al-Din, as the area to erect the second congregational mosque of Mosul. Moreover historical sources refer to the construction of a madrasa, a school, connected to the building of the Prayer Hall. It is located on the crossing point of the two main urban axes: the east-west axis is the Al Shaziani Street, and the north-south axis is the Nineveh Street that is connecting the old and new city. Before the recent conflict, the visitors strolling on Niniveh Street were guided by the presence of two of the city's most important landmarks dominating its skyline, one of them was the minaret of Al Nouri mosque, which is not just a symbolic landmark for the city of Mosul but rather for Iraq itself.

Although the mosque was badly damaged, its most iconic dome and parts of the walls have survived. Our interventions were discreet in order to maximise respect for the ruins. First of all we

decided to keep all the surviving parts of the mosque and therefore to reinforce the walls to avoid further damage. Our idea is to add a layer of steel frame to the interior of the dome space to support the remaining dome, try to control the number and size of steel bars, and reduce the damage to the atmosphere of the dome space.

Therefore, we propose a temporary solution, using wooden structure hanging boards, distinguishing old and new materials, and rebuilding the space of the original mosque on the premise of retaining the traces of war. The most important thing about the new structure is to no longer make the remaining wall load-bearing, but to retain a new set of load-bearing structures outside the wall. The dimensions of all wooden structures are as consistent as possible with the original mosque. In order to preserve the remnants of the south facade of the mosque, we decided to move the new south facade wall a little bit southward from the original position, so as to prevent the new structure from touching the existing structure where they are relics. Regarding the reconstruction of the interior space of the mosque, we reconstructed the walls with wooden structures, and all the new walls are load-bearing with the new structure and have gaps with the old walls. The gap is left in order not to damage the old wall, and also to clearly distinguish the old and new materials.

In conclusion, we remodeled the space of the mosque with new materials and structures on the premise of keeping all the surviving walls, and avoided the connection between new materials

and old materials, so that people can tell which are the new walls and which are retained part. We hope that this scheme can reshape the spirit of Mosul while preserving the traces of history.

The new building on the western part of the area hosts the madrasa, the school for the religious education. The facilities-building and the building of the school are aligned in order to make a strong visual connection to the minaret, creating a strong project axes. Running perpendicular to it, and aligned with the north facade of the mosque, is the entrance to the school building with the main hall of the school. From this structure depart the branches connecting all the classrooms, offices and other facilities. The central core of the school is represented by the auditorium space, which aim is to hold big events. The main hall is the tallest mass of the school and the most important one, which dominate the school in distribution and function. The 12 classrooms are oriented to face the mosque, beside each of them on ground floor is located a serving space.

There are three pre-existent buildings on the school area, located on its corners and well preserved in the old structure. The project aims to integrate them with school functions.

On the southern part of the area is located the building of the souq. On the axis running through the minaret is located a new square space. It derives from the extension of the wide walkway facing the minaret providing a platform from which is possible to reach the underground space

that hosts an auditorium. The square is enclosed by an open courtyard building which contains a circulation system that serves a series of exhibition spaces.

The spaces with a commercial function are orthogonally connected to it. The two wings of the bazaar aim to reinterpret the typology of the traditional Islamic market, and is composed by a series of cellular spaces arranged on different levels, some of them are integrated with the staircase leading to an underground storage, some other are duplex with their independence vertical distribution.

Project Site

The Grand Al-Nouri Mosque is located in the historical center of the old city of Mosul and works as a landmark for the inhabitants. It was built in 1172 and was founded by the atabeg ruler Nur al-Din Mahmud Zengi. The mosque is very recognizable by its brick minaret which dominates the city from 45 meters. During the centuries the minaret took a curious curved shape recalling the bent praying position, giving the building its nickname, the “ the hunchback”.

According to the historical documents, it appears that the mosque was originally surrounded by a souq that later moved to the South in reason of the trade roads.

The main building that was dedicated to the prayer hall followed a rectangular plan and was divided by a series of arches and columns that paced the space. In the northern part, a big courtyard was bordered by a madrasa and a school. One of the most precious elements of architecture is the mihrab, built by Nur al-Din Zengi during the 6th century.

Throughout history, the mosque has been rebuilt and modified, in 1511, the mosque was renovated by the Safavid Empire. In 1942, the mosque was dismantled by the Iraqi government to be rebuilt based on another plan. The minaret was also reinforced after the bombing of Mosul during the war between Iran and Iraq in the eighties. Unfortunately, these works were not sufficient to prepare the building for the most recent violence during the war against ISIS.

In June 2014, targeted by the bomb, the building was saved by the inhabitants that created a human chain to protect one of their most important cultural sites against destruction. One month later, Abu Bakr al-Baghdadi appeared during a Friday prayer in this mosque to declare the formation of a new caliphate.

After decades of wars and violent conflict, a few weeks before the liberation of the city, the building was destroyed by bombs. Only the central dome and a few arches remained standing.

After extensive damage, in addition to the mosque and the pavilion, some residential buildings have survived near the minaret, and three historic houses have survived on the adjacent site. We decided to keep the surviving buildings as much as possible, build a relatively simple volume on the site in front of the mosque to provide the service space before worship, and design a religious school on the site next to it, combining the surviving buildings with the new buildings, while The southern part of the site is used for the market space supporting the new mosque.

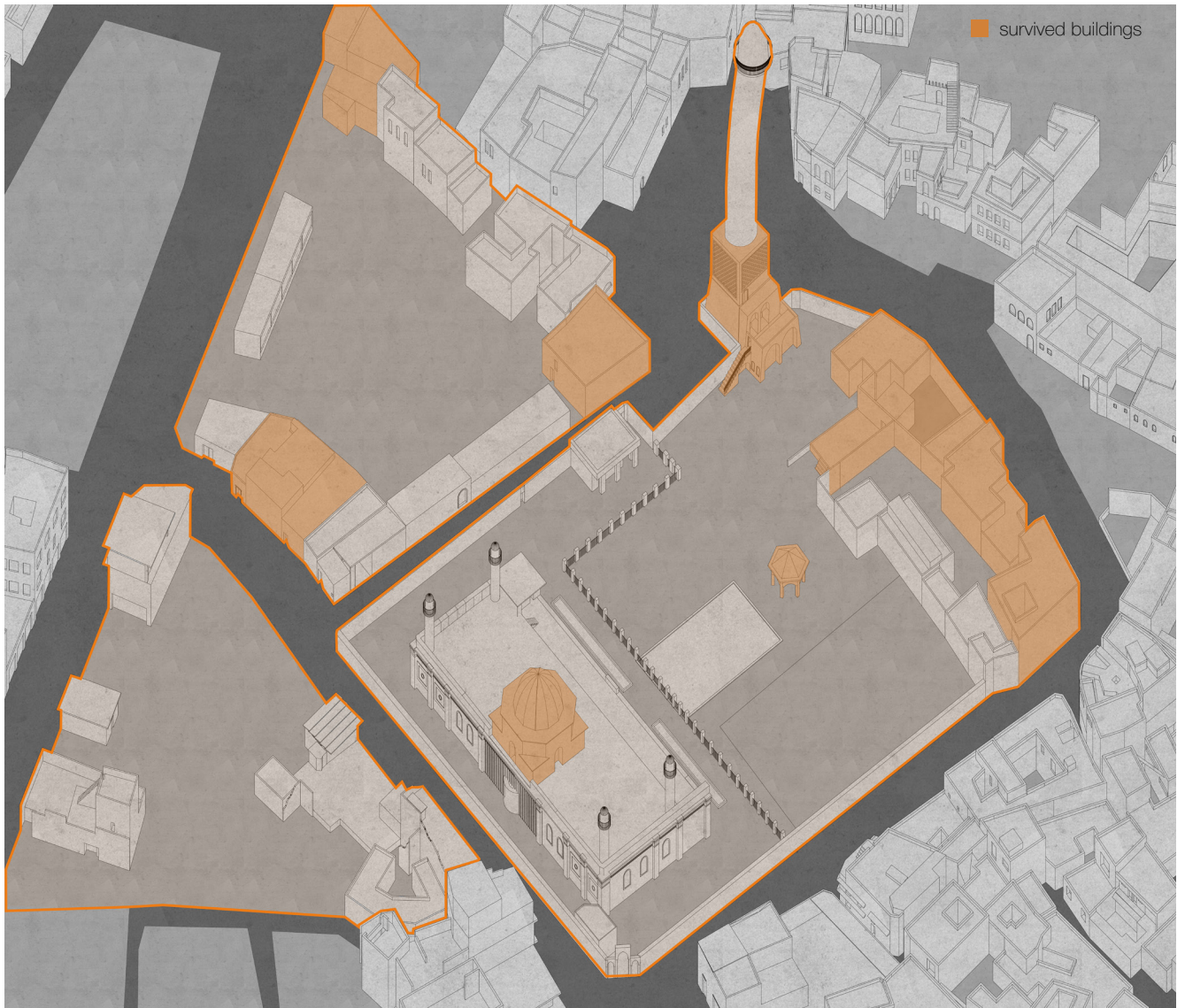


Fig. 5.31 Diagram of Axonometric Drawing before the Conquest

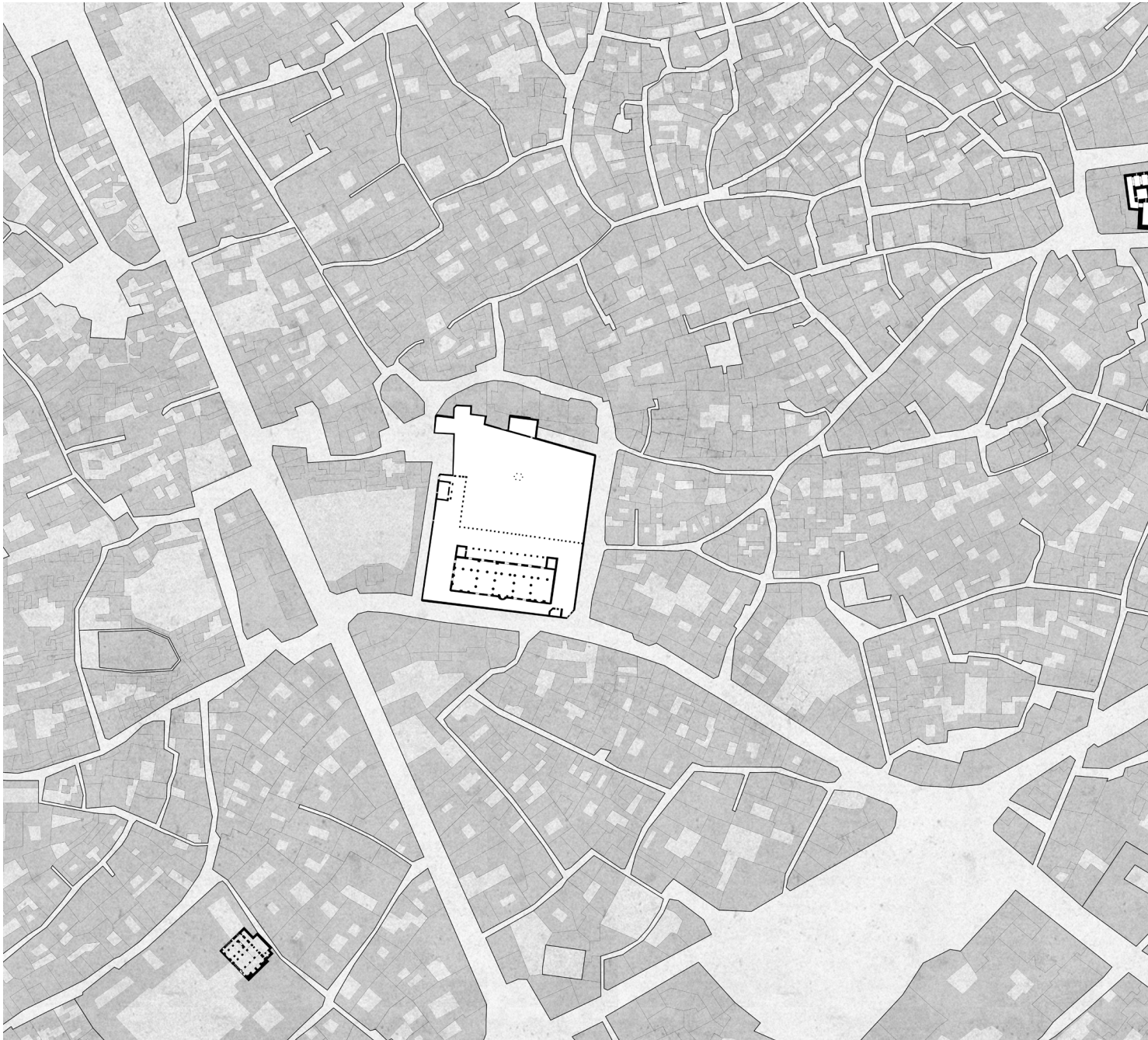


Fig. 5.32 The Post-War Al-Nouri Mosque Complex





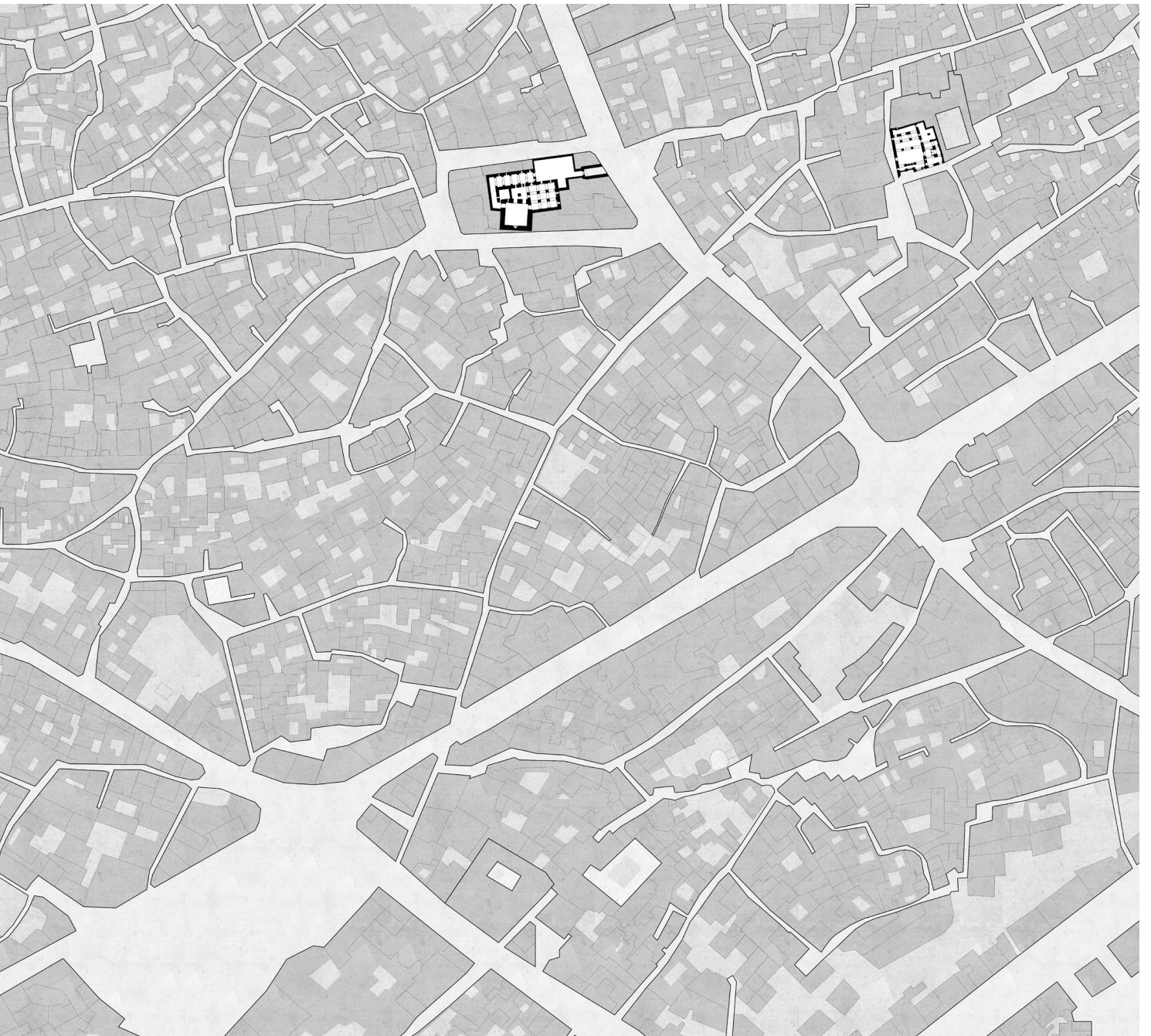
Fig. 5.33 The Proposed Al-Nouri Mosque Complex



The Proposal



Fig. 5.34 Master-Plan of The Al-Nouri Mosque Complex



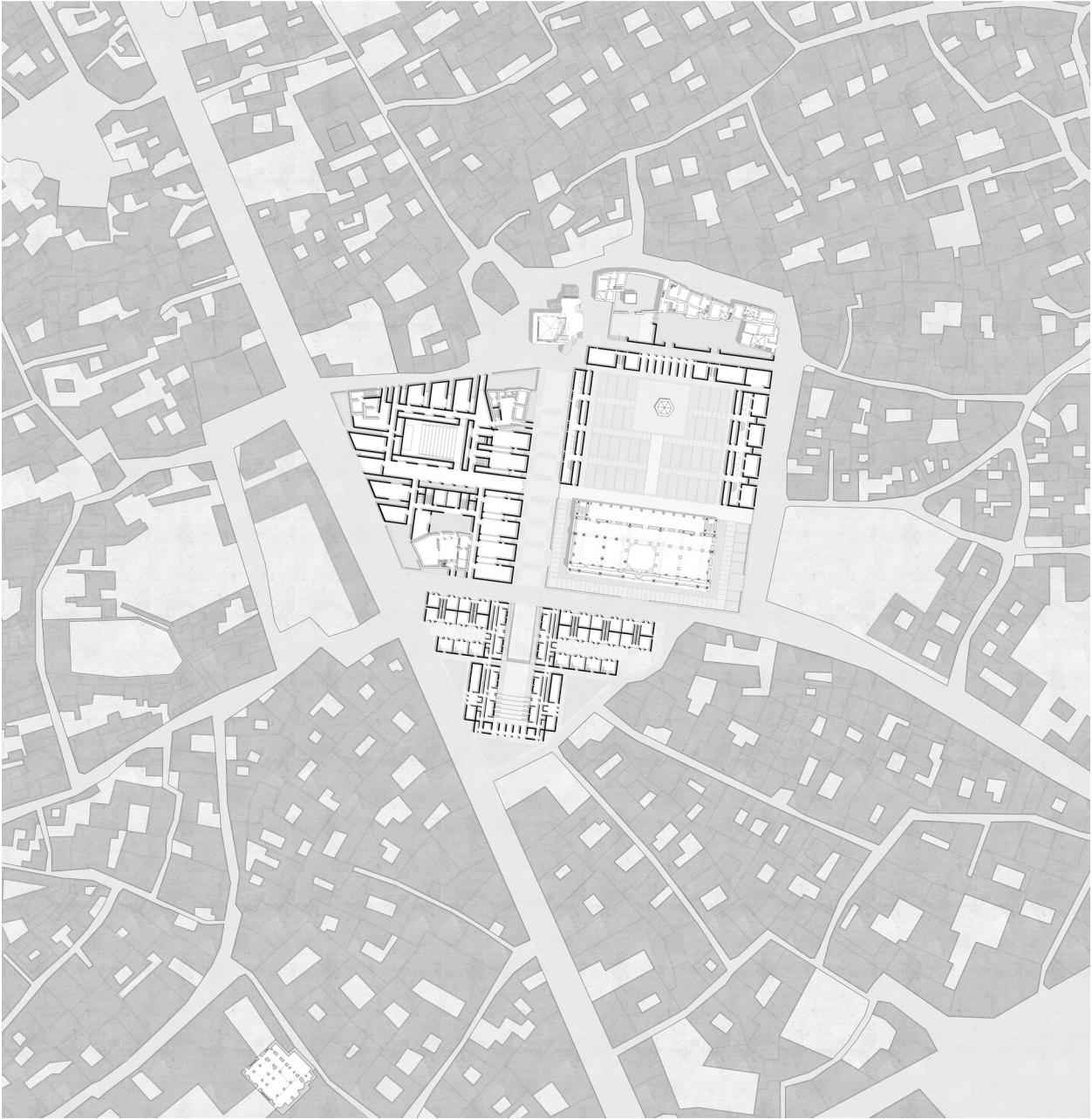


Fig. 5.35 Master-Ground Floor Plan of The Al-Nouri Mosque Complex

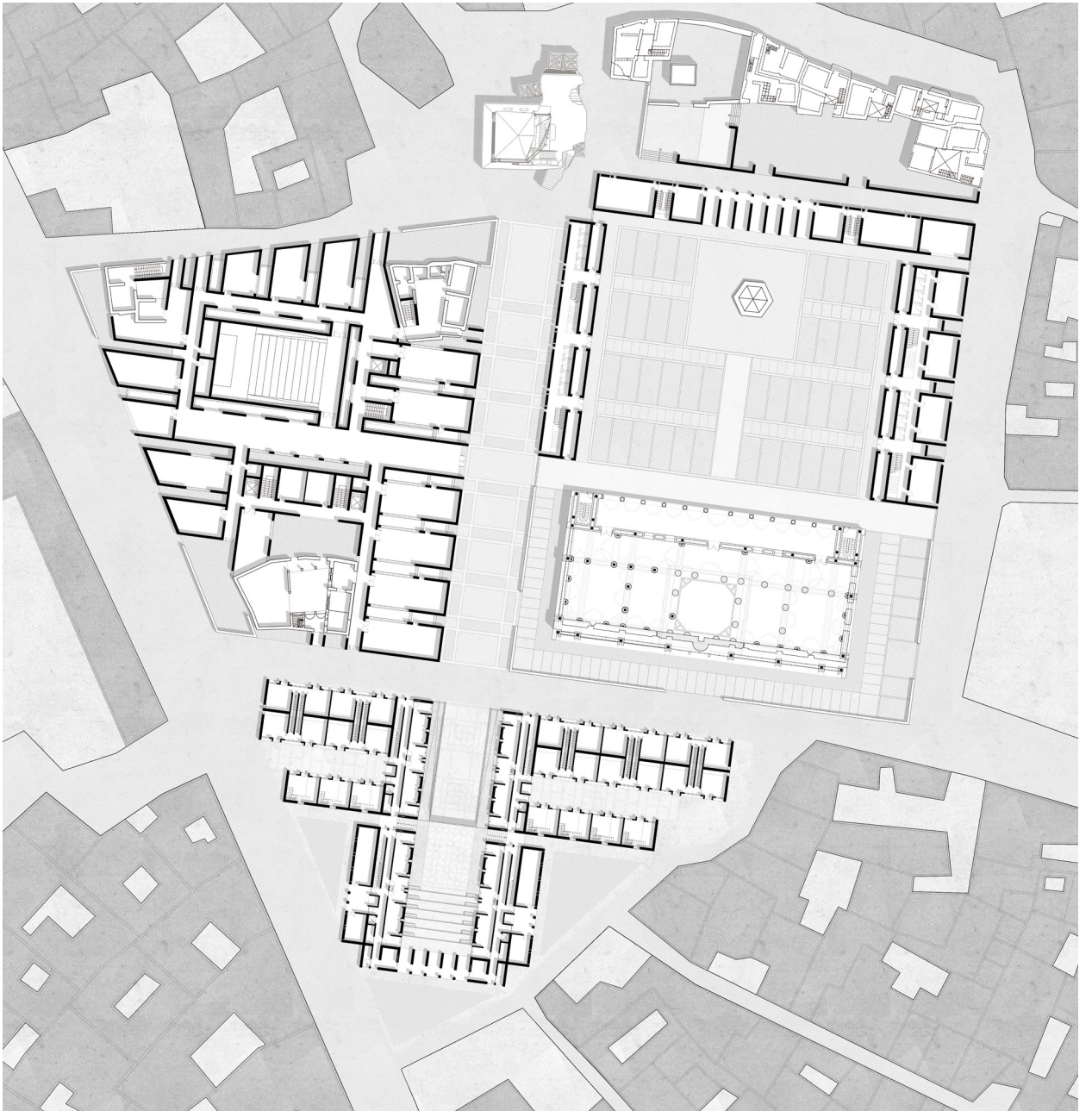


Fig. 5.36 Ground Floor Plan of The Al-Nouri Mosque Complex

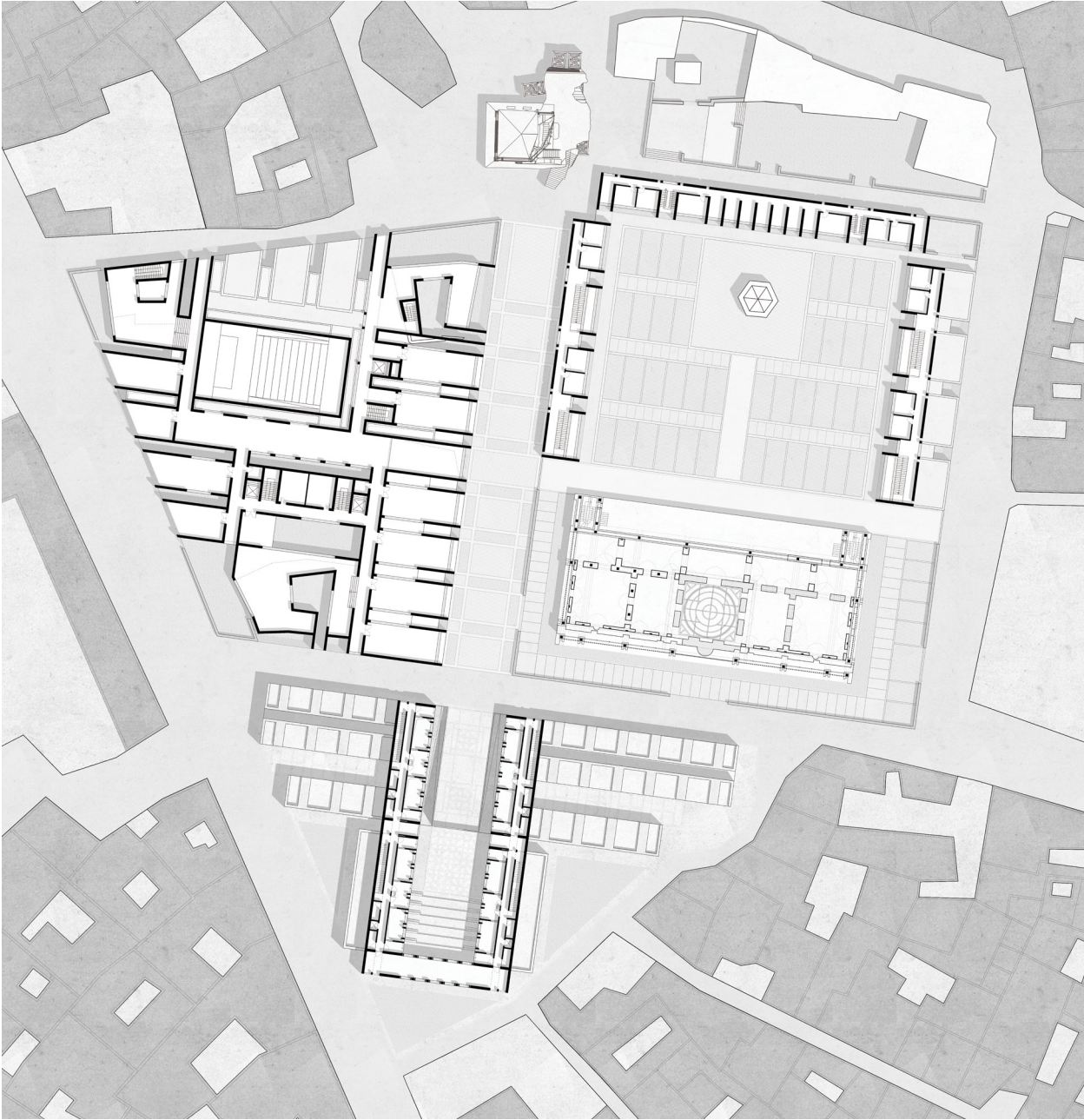


Fig. 5.37 First Floor Plan of The Al-Nouri Mosque Complex

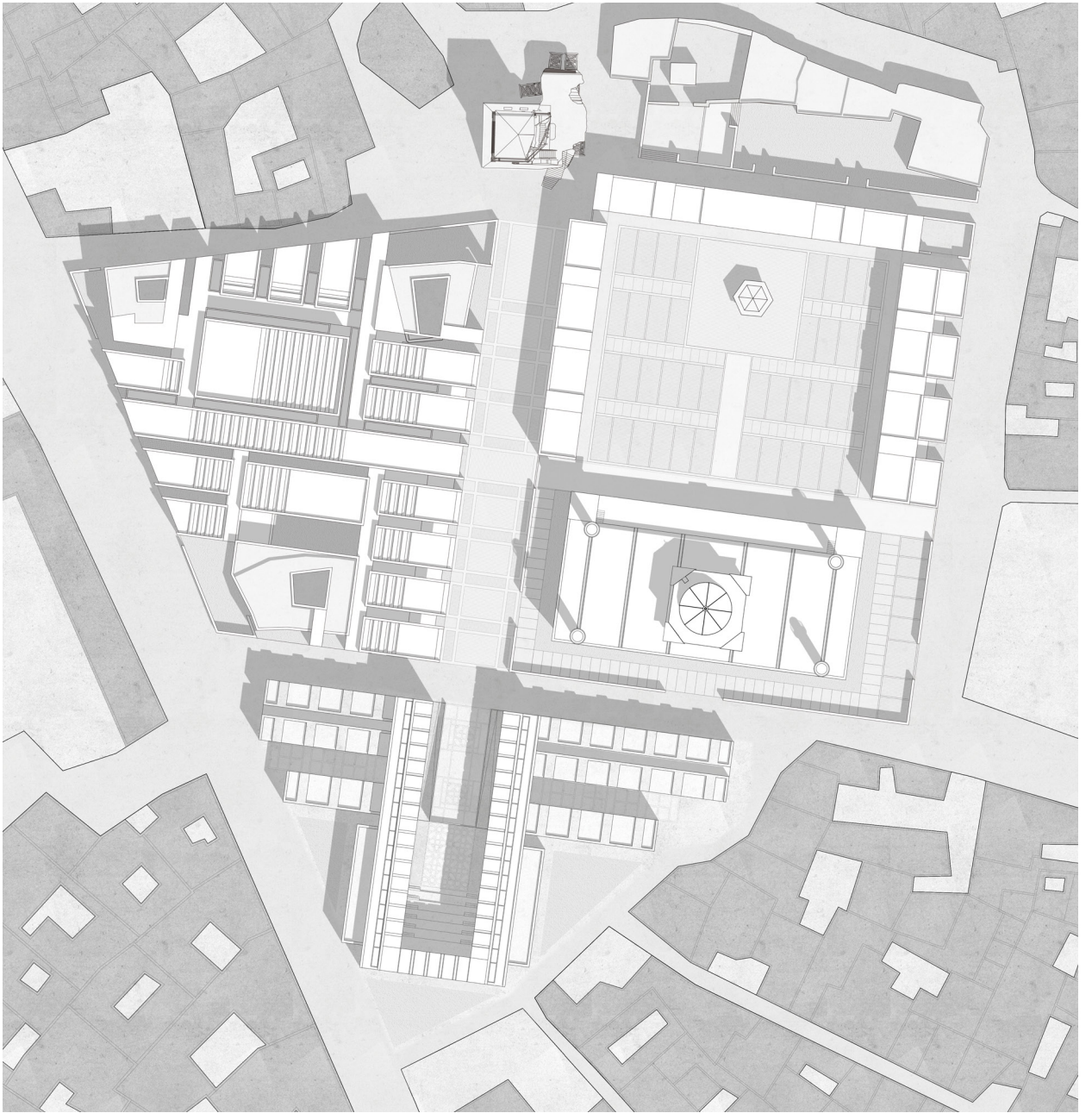
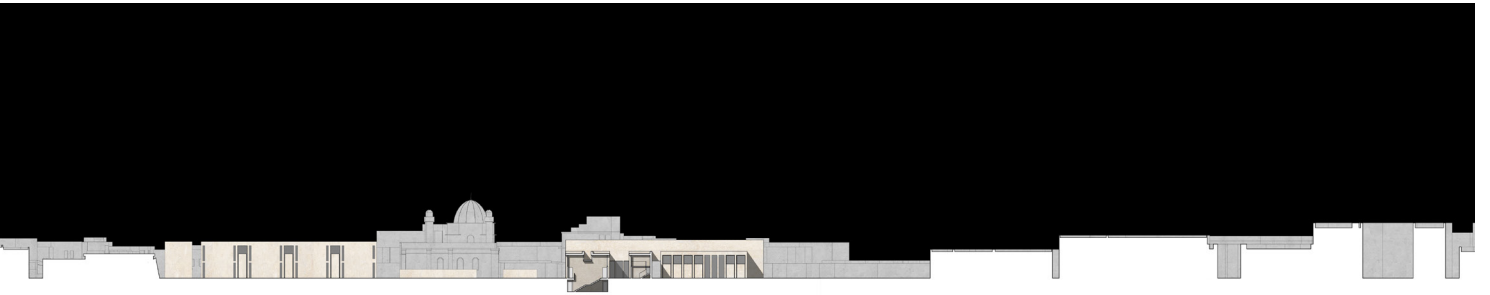


Fig. 5.38 Roof Floor Plan of The Al-Nouri Mosque Complex



Fig. 5.39 Urban Sections of Souq Complex



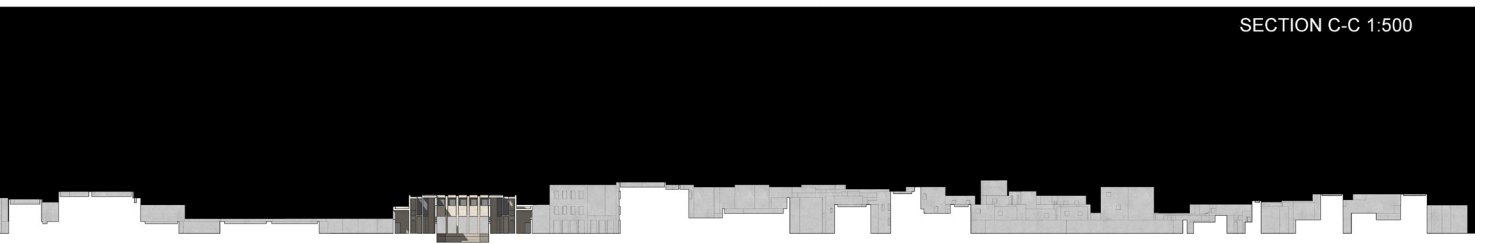
SECTION A-A 1:500



SECTION B-B 1:500



SECTION C-C 1:500



SECTION D-D 1:500

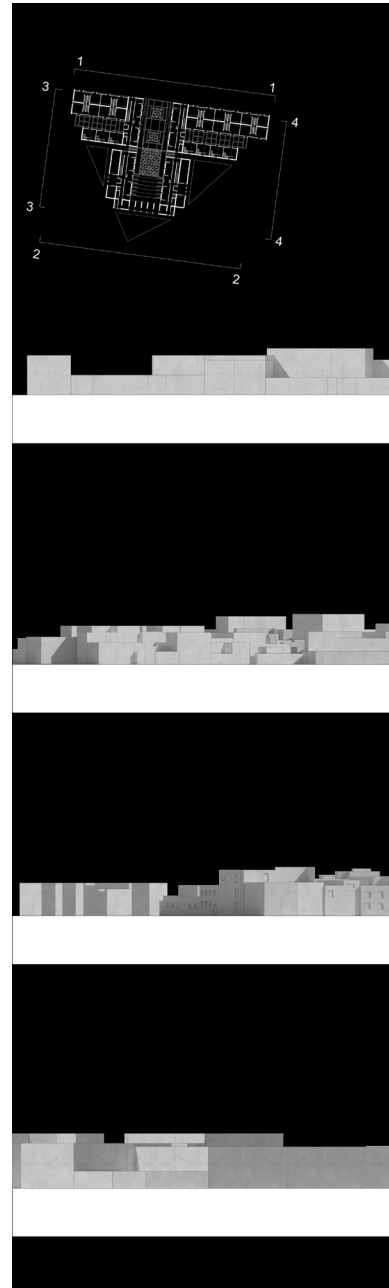


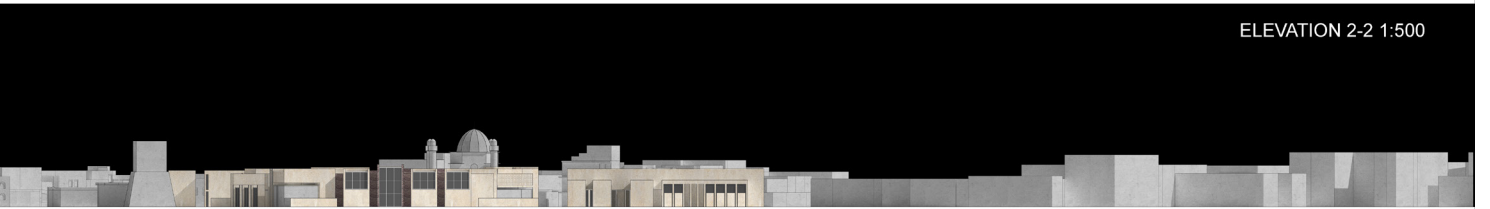
Fig. 5.40 Urban Elevations of Souq Complex



ELEVATION 1-1 1:500



ELEVATION 2-2 1:500



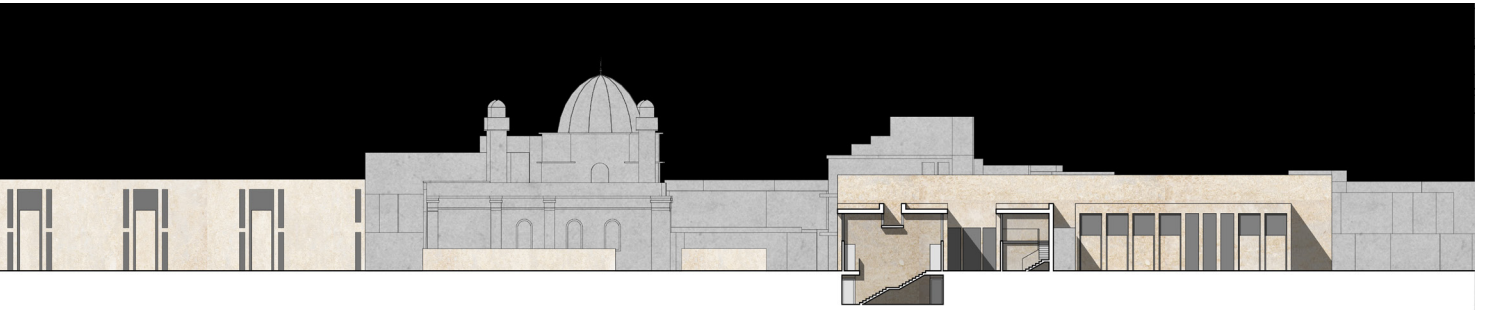
ELEVATION 3-3 1:500



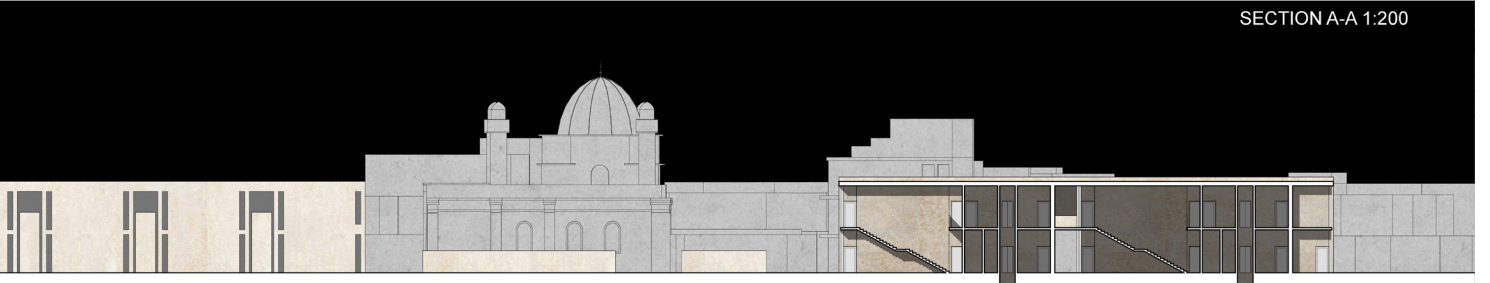
ELEVATION 4-4 1:500



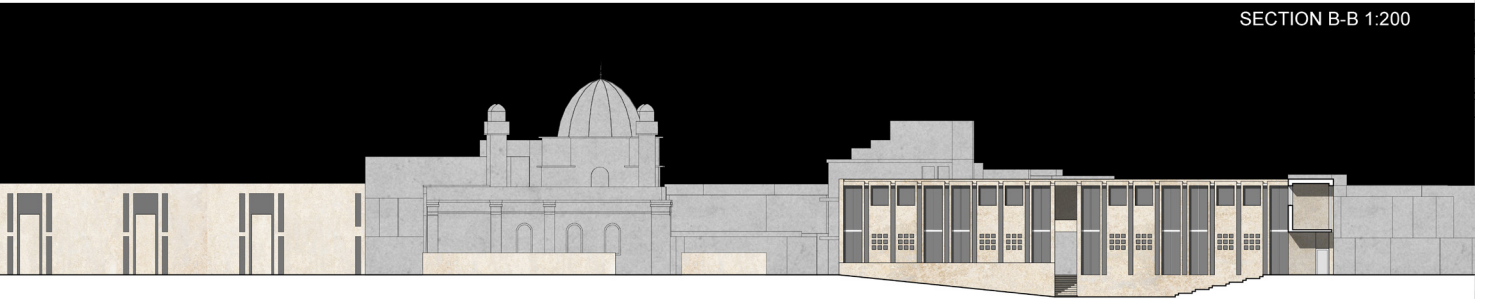
Fig. 5.41 Sections of Souq Complex



SECTION A-A 1:200



SECTION B-B 1:200



SECTION C-C 1:200



SECTION D-D 1:200

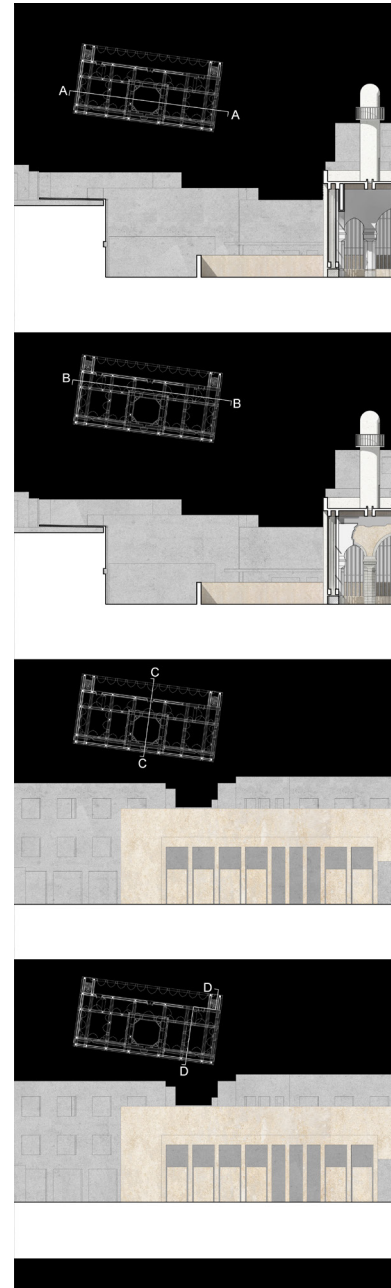
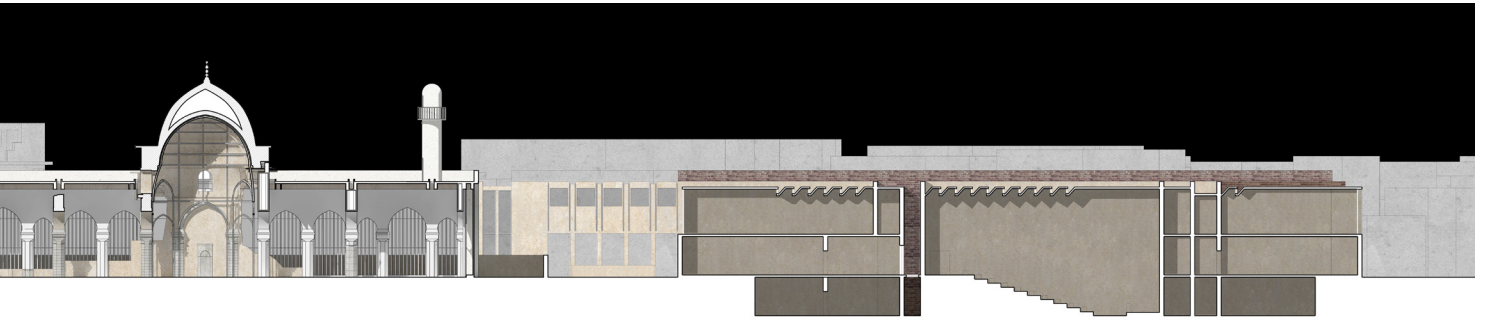
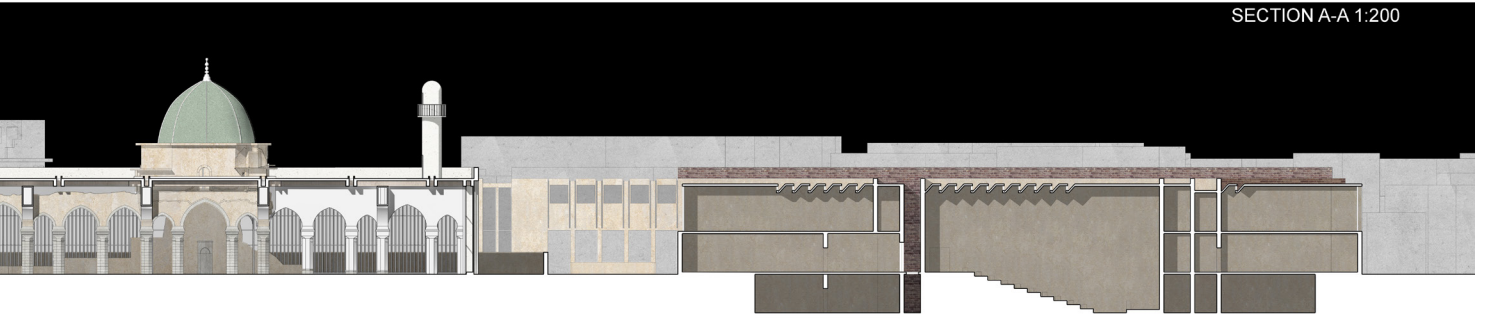


Fig. 5.42 Sections of The Reconstruction of Mosque



SECTION A-A 1:200



SECTION B-B 1:200



SECTION C-C 1:200



SECTION D-D 1:200

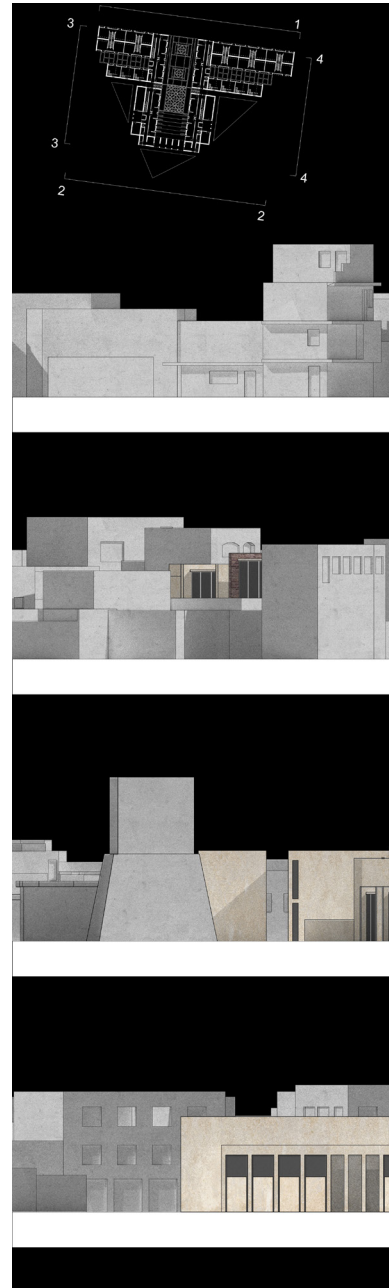
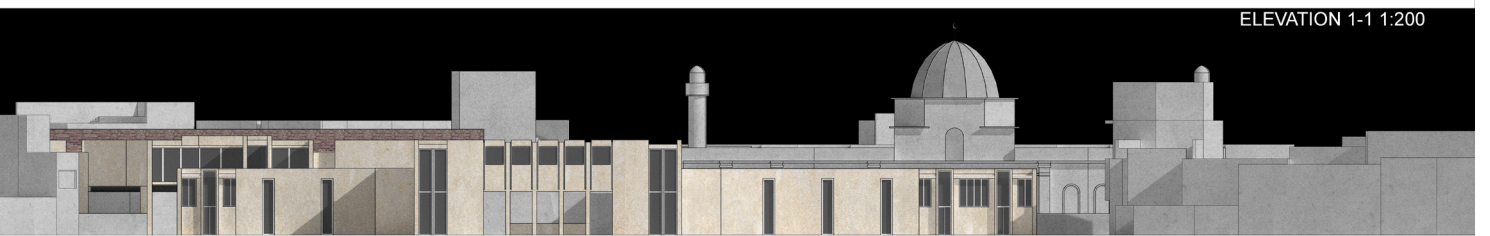


Fig. 5.43 Elevations of Souq Complex



ELEVATION 1-1 1:200



ELEVATION 2-2 1:200



ELEVATION 3-3 1:200



ELEVATION 4-4 1:200

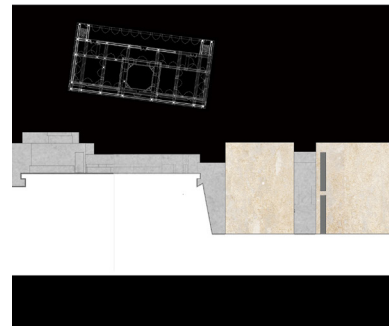
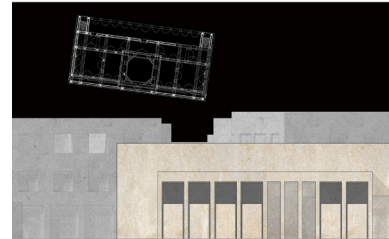
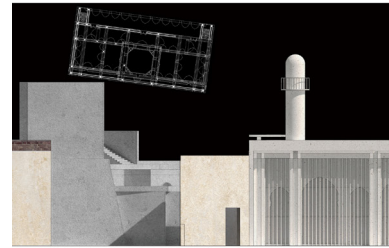
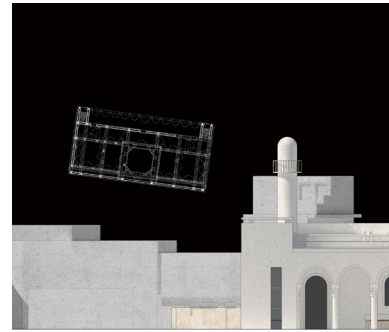
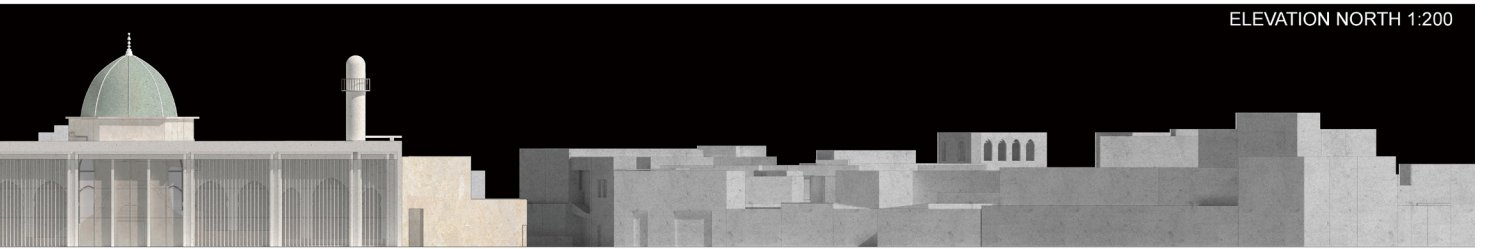


Fig. 5.44 Elevations of The Reconstruction of Mosque



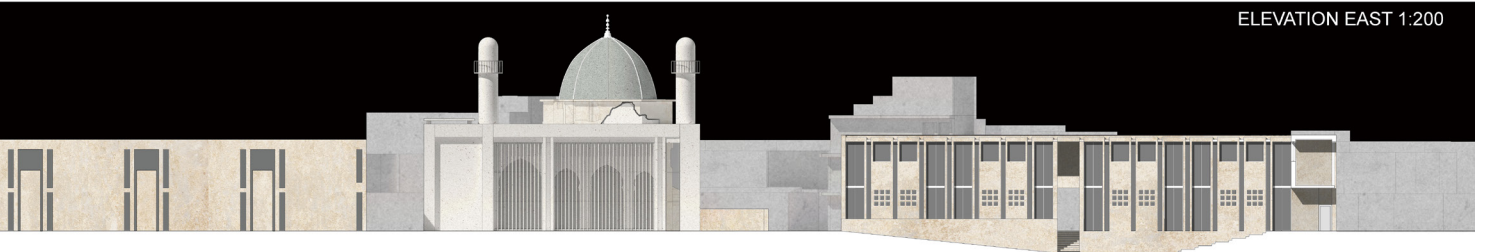
ELEVATION NORTH 1:200



ELEVATION SOUTH 1:200



ELEVATION EAST 1:200



ELEVATION WEST 1:200

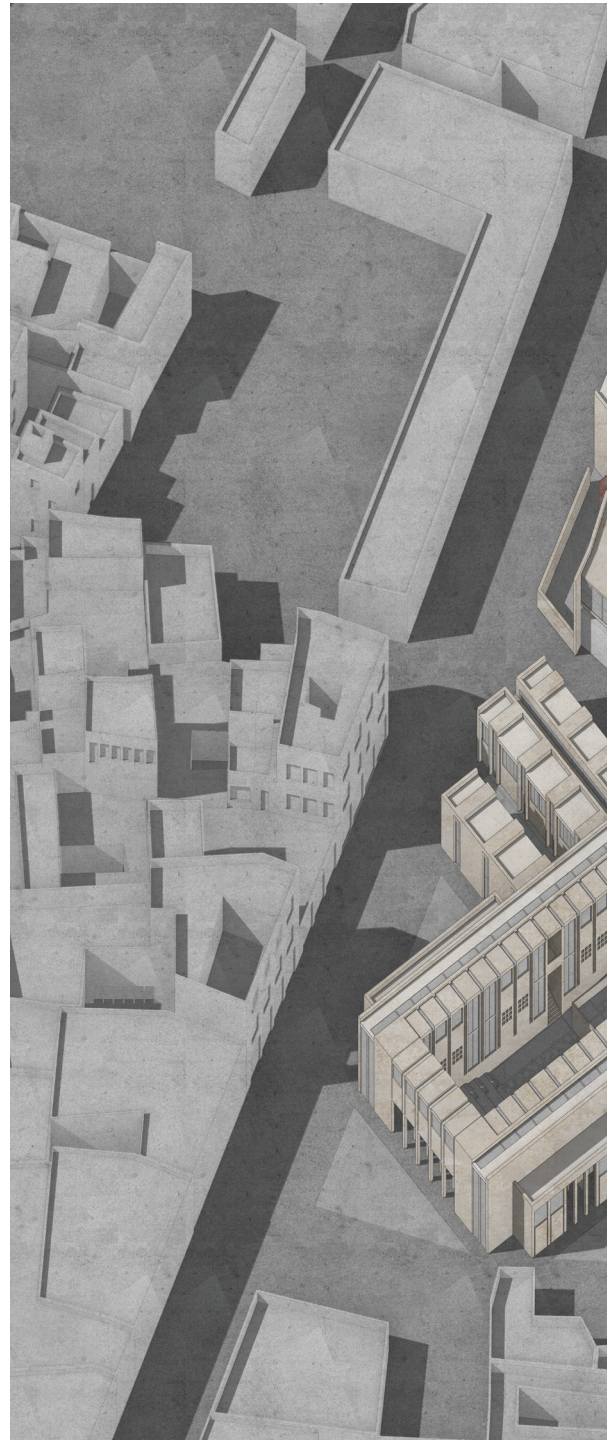
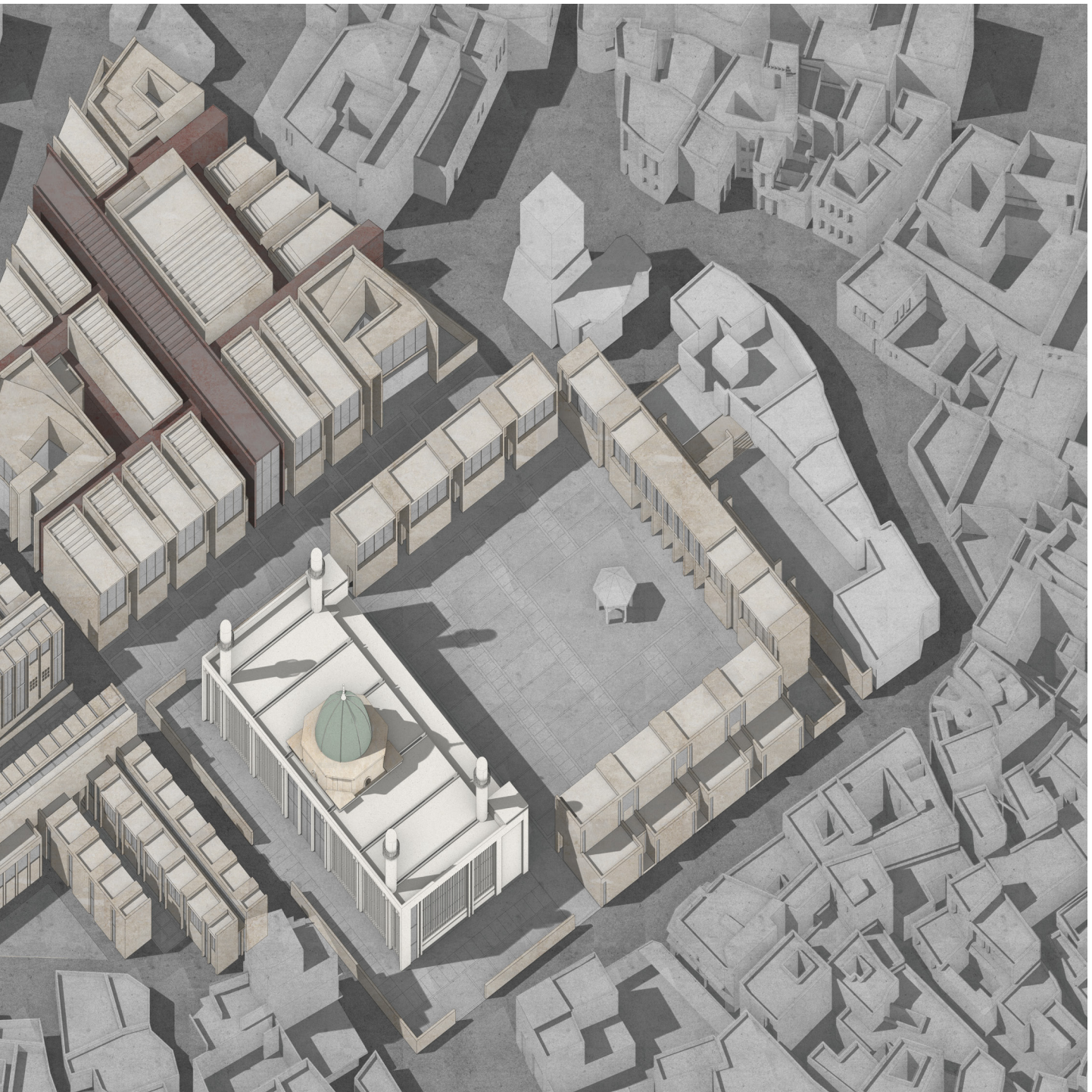


Fig. 5.45 Axonometric View



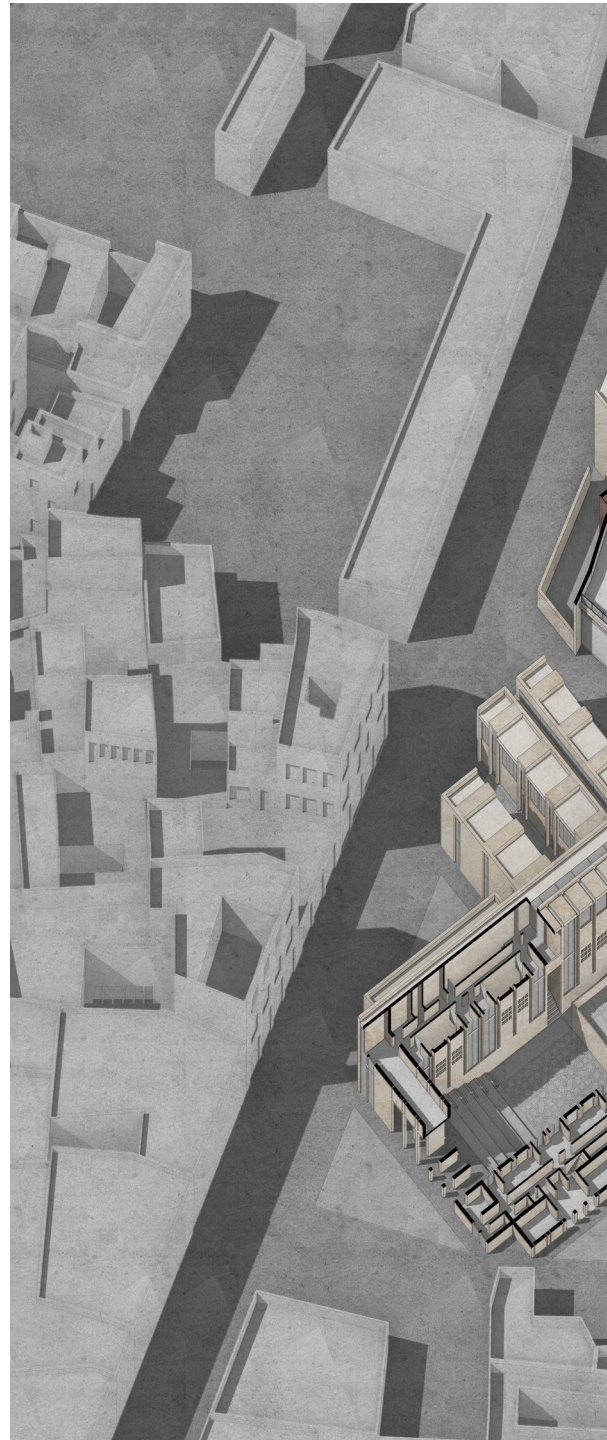
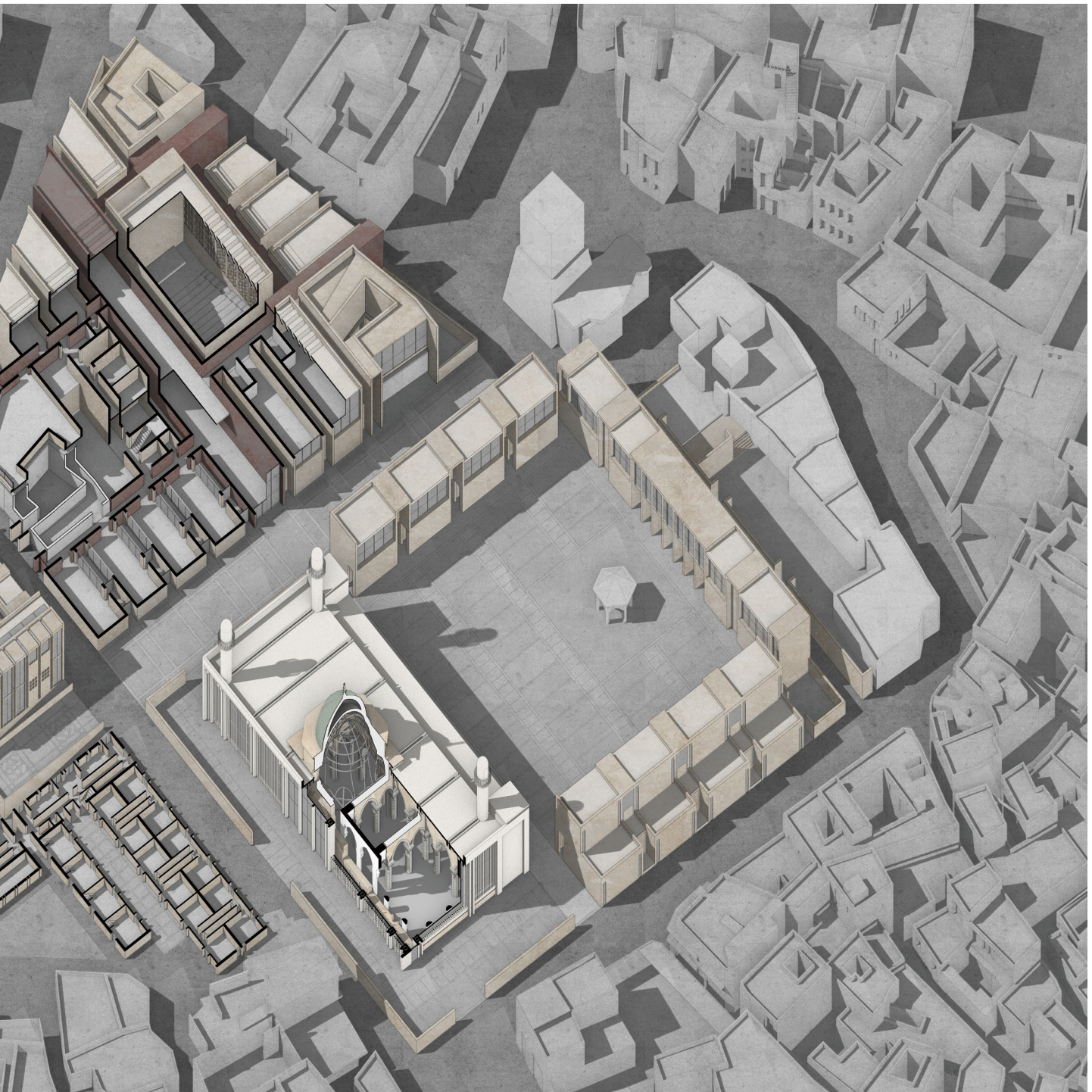


Fig. 5.46 3D Section



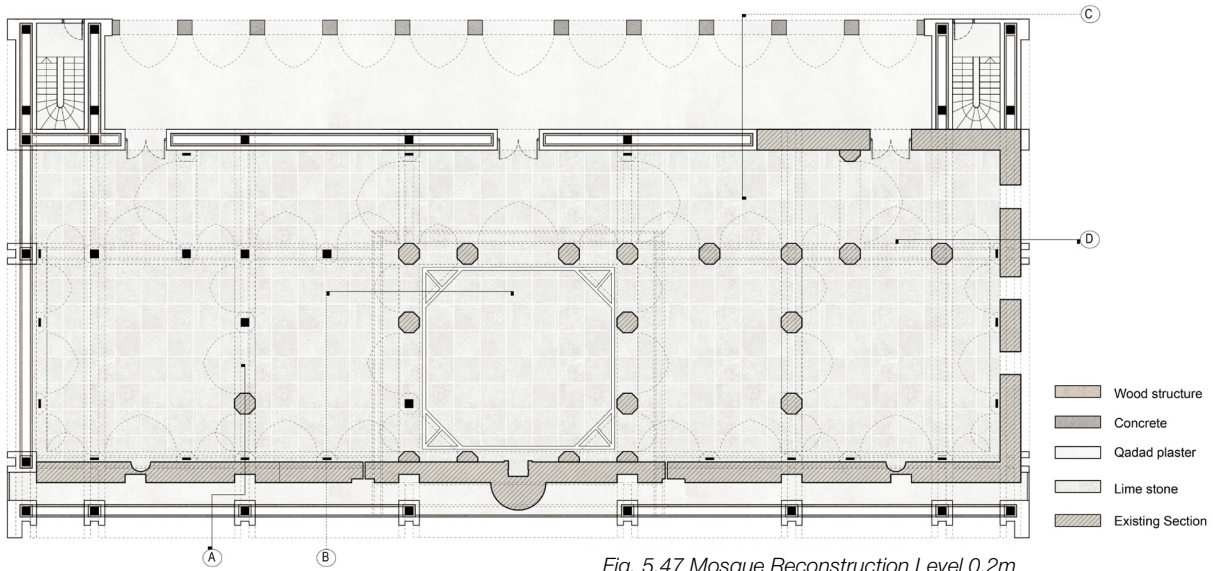


Fig. 5.47 Mosque Reconstruction Level 0.2m

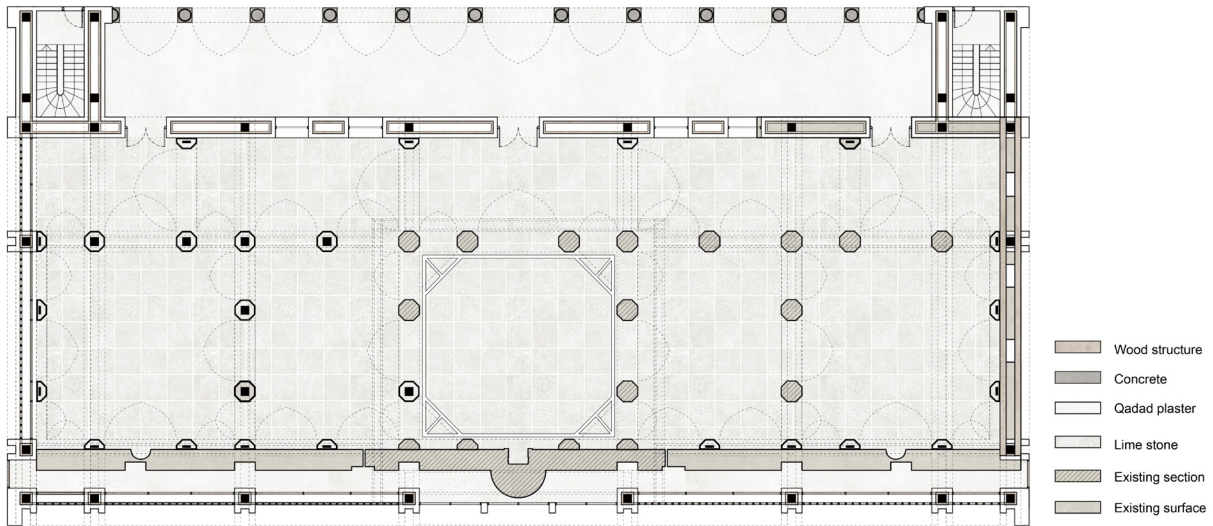


Fig. 5.48 Mosque Reconstruction Level 1.5m

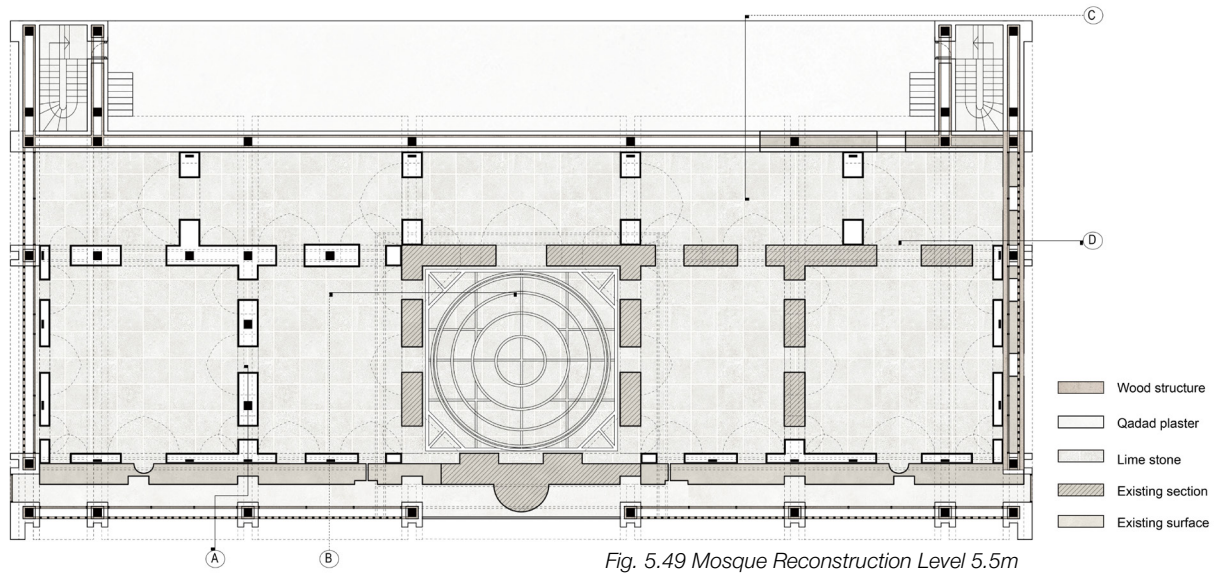


Fig. 5.49 Mosque Reconstruction Level 5.5m

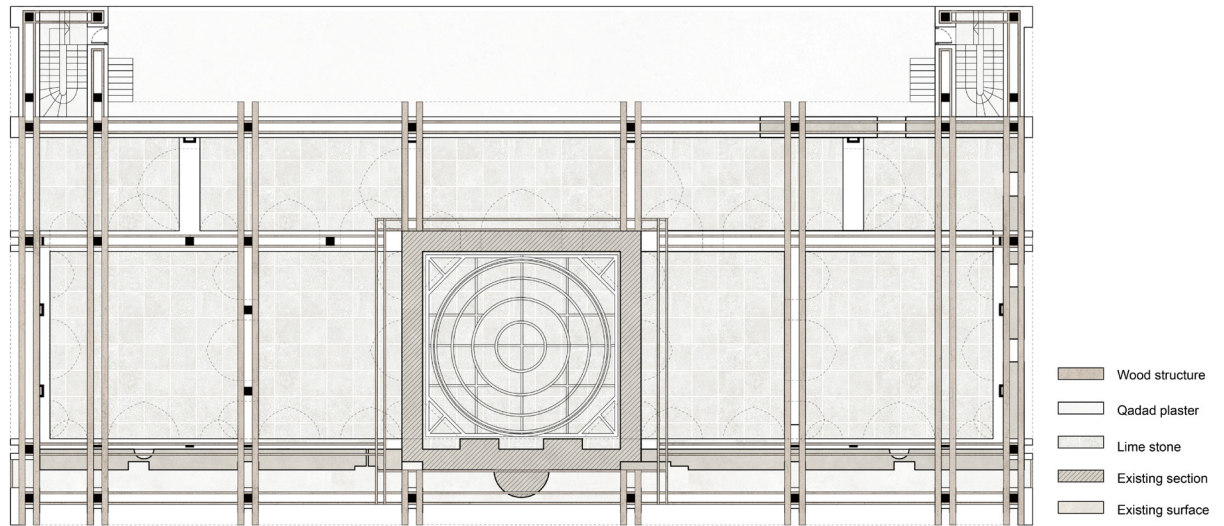


Fig. 5.50 Mosque Reconstruction Level 8.0m

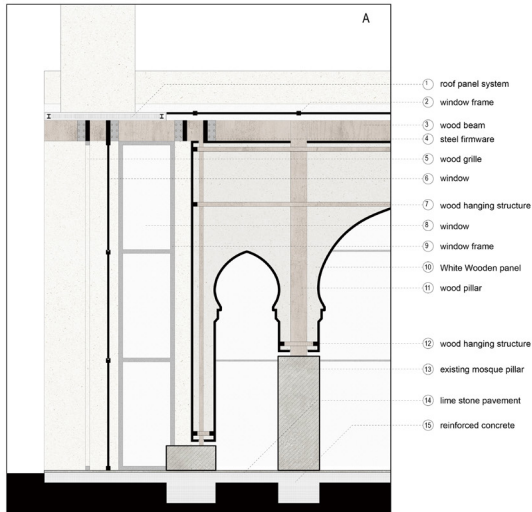


Fig. 5.51 Details Existing Pillar Reconstruction

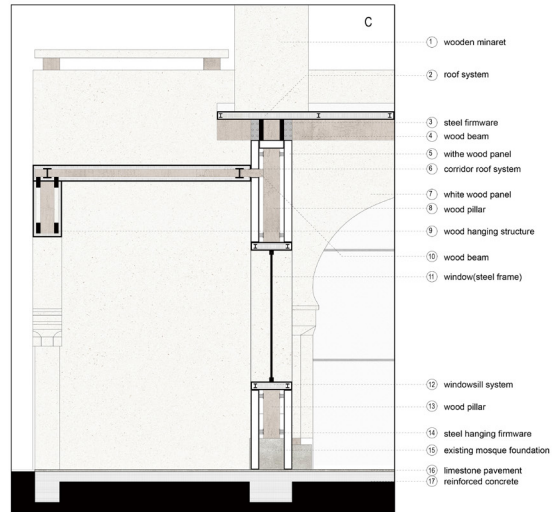


Fig. 5.52 Details Corridor Reconstruction

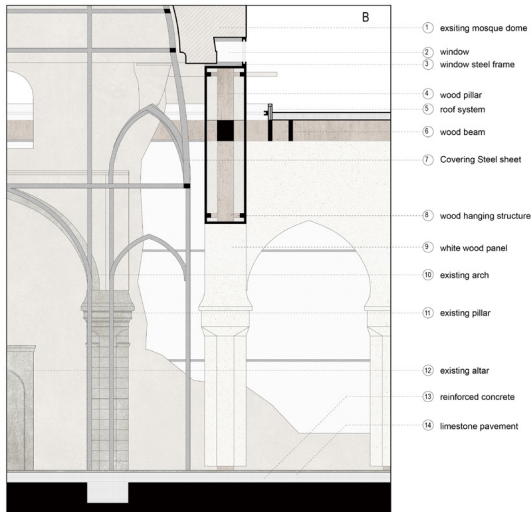


Fig. 5.53 Details Dome Reconstruction

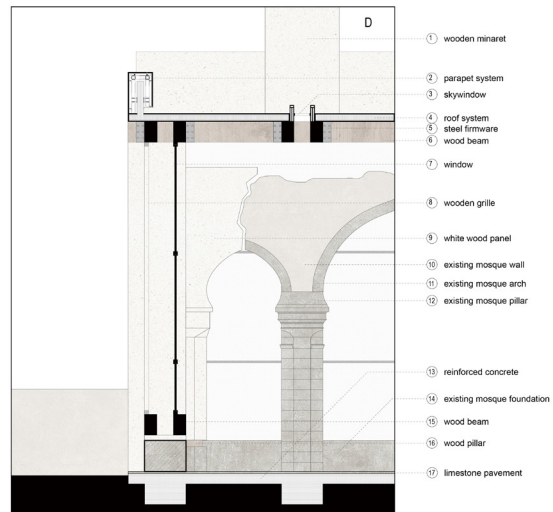


Fig. 5.54 Details Arch Reconstruction

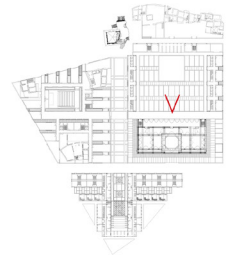
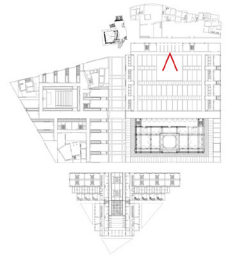


Fig. 5.55 Perspective Views

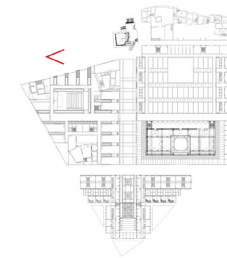
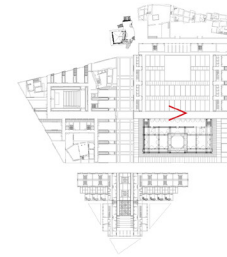


Fig. 5.56 Perspective Views

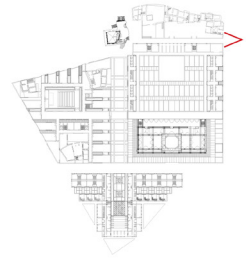
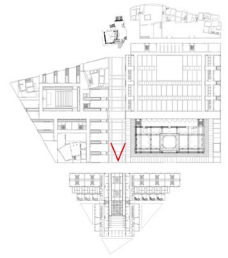


Fig. 5.57 Perspective Views



Fig. 5.58 Perspective Views

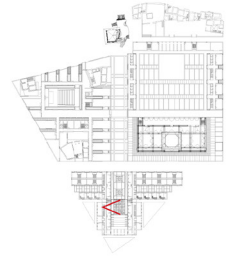
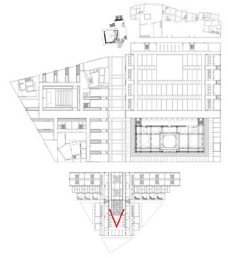


Fig. 5.59 Perspective Views

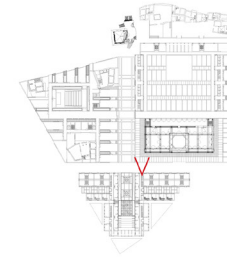
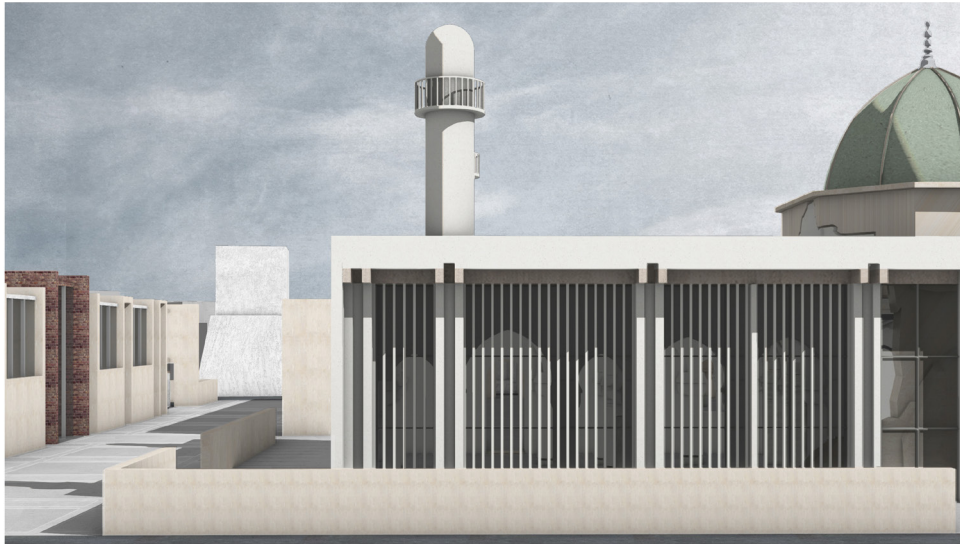
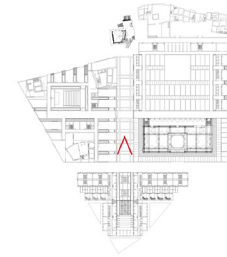


Fig. 5.60 Perspective Views

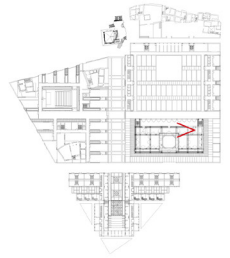
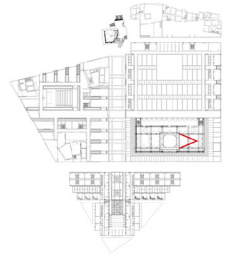
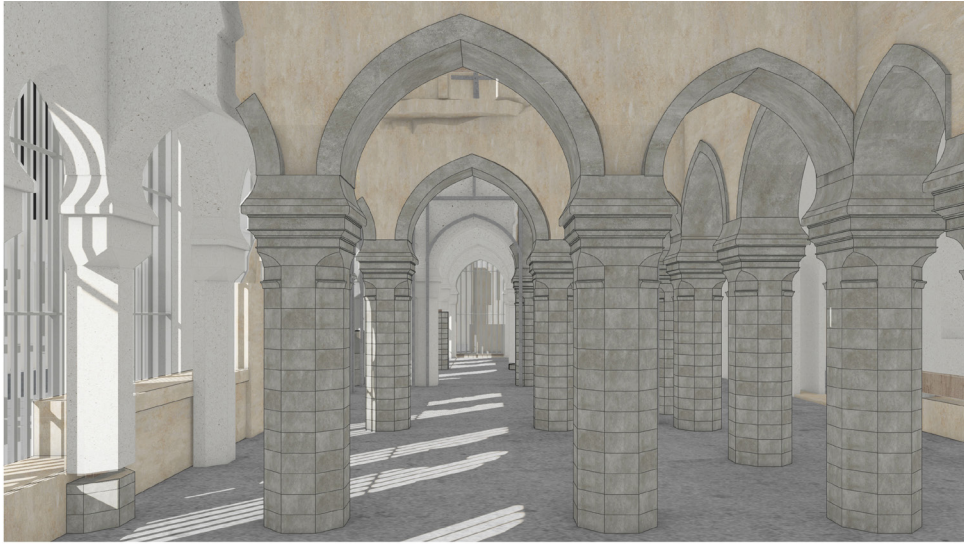


Fig. 5.61 Perspective Views

Bibliography

Chapter I

01. Al-Duji, M., Abdullah, H., 'The Effect of Morphological Changes in Urban Fabric on its Syntactical properties' , *Journal of Architecture and Planning*, 9/1 (2018), 348-362.
02. Al-Kubaisy, F., *The Architectural Conservation in Mosul Old town-Iraq*. (California: CreateSpace Independent Publishing Platform, 2010).
03. Bosworth, C., *Historic cities of the Islamic world*, (Leiden: Brill, 2008).
04. Fethi, I., *Urban conservation in Iraq " The case for protecting the cultural heritage of Iraq with special reference to Bagdad including a comprehensive inventory of its areas and buildings of historic or architectural interest "* (Sheffield: Sheffield Academic Press, 2021).
05. Houtsma, M., Russel, A., *First Encyclopaedia of Islam* (Leiden: Brill, 1993).
06. Iamoni, M., 'The Prehistoric Roots of Nineveh' , *Palma*, 13/1 (2017), 109-112.
07. Layard, A., *Nineveh and its remains* (Guildford: Lyons Press, 2001).
08. Maadydy, K., *State of Bani Aqeel in Mosul* (Baghdad: Shafiq Press, 1968).
09. Novacek, K., Melcak, M., Starkova, L., Beranek, O., *Monuments of Mosul in Danger* (Prague: The czech academy of sciences, 2017).
10. Petit, P., Morandi, D., 'Nineveh, the Great City. Symbol of Beauty and Power', *Palma*, 13/1 (2021), 15-22.
11. Ragozin, Z., *Assyria from the rise of the empire to the fall of Nineveh* (London: T.F. Unwin Ltd, 1920).
12. Russell, J., *Sennacherib's palace without rival at Nineveh* (Chicago: University of Chicago Press, 1992).
13. Saigh, S., *Histoire de Mossoul* (Baghdad: Salafia Printing Press, 1923).
14. Sarre, F., Herzfeld, E., *Archaeologische Reise Im Euphrat-Und Tigris-Gebiet* (Berlin: Forgotten Books, 1920).
15. Thompson, R., 'The Buildings on Quyunjiq, the Larger Mound of Nineveh' , *Jstor*, 1 (1934), 95-104.

Chapter II

01. UN-Habitat, 'City Profile of Mosul, Iraq: Multi-sector assessment of a city under siege' , UN-Habitat (2016), <<https://unhabitat.org/node/142206>>.
02. Library of Congress, 'Country Profile: Iraq', Library of Congress (August 2006), <<https://www.loc.gov/rr/frd/cs/profiles/Iraq.pdf>>.
03. United Nations, 'Ninewa Governorate Profile' , reliefweb.int (2010), <https://reliefweb.int/sites/reliefweb.int/files/resources/4859DB127BC8BA3DC12577EB00510F96-Full_Report.pdf>.
04. Salman, S., Shahid, S., Ismail, T., Ahmed, A., Wang, X., 'Selection of climate models for projection of spatiotemporal changes in temperature of Iraq with uncertainties' , *Atmospheric Research*, 213 (2018), 509-522.

Chapter III

01. Ahmed, H., 'Mosul Recovery: A National campaign to remove harmful plants', mosul-eye.org (2018), <<https://mosul-eye.org/2019/01/12/mosul-recovery-a-national-campaign-to-remove-harmful-plants/>>.
02. 'Aleppo', Middleeast.com (11 March 2012), <<http://www.middleeast.com/aleppo.htm>>.
03. 'Alepposeife: Aleppo history' , (09 June 2012), <<http://www.historische-aleppo-seife.de/>>.
04. Ahmed, H., 'Mosul sowing seeds post-Islamic State', Al-monitor.com (2020), <<https://www.al-monitor.com/originals/2020/07/iraq-mosul-agriculture-trees.html>>.
05. Al Hussein, Z., 'Accountability and reconciliation key to heal Iraq's ISIL wounds', Ohchr.org (2017), <<https://www.ohchr.org/en/NewsEvents/Pages/DisplayNews.aspx?NewsID=21860>>.
06. Al-Saffar, M., 'Baghdad the City of Cultural Heritage and Monumental Islamic Architecture' , *Disegnarecon*, 13/25 (2020), 1-15.
07. Al-Shanona, R., Al-Maathide, A., Al-Asaaf, A., 'The environmental status of tigris river water in mosul city, northern of iraq' , *Plantarchives*, 20/1 (2020), 3051-3056.
08. UNESCO, 'Ancient City of Damascus' , (2013), <<https://en.unesco.org/syrian-observatory/news/ancient-city-damascus>>.
09. Antonelli, G., Cossu, T., 'Mosul after ISIS strategies for post-conflict recovery and reconstruction the case of Mosul Old City' , in N, Olimpia, Eric, L, ed., *Transcultural Diplomacy and International Law in Heritage Conservation* (Singapore: Springer, 2021), 395-407.
10. Bianca, S., *Urban form in the Arab world* (Zurich: vdf, 2000).
11. Bibbo, B., 'Mosul Dam collapse 'will be worse than a nuclear bomb' , aljazeera.com (2016), <<https://www.aljazeera.com/features/2016/12/11/mosul-dam-collapse-will-be-worse-than-a-nuclear-bomb>>.
12. Bokova, I., 'Director-General of Unesco condemns new destructions in the ancient city of Nineveh' , unesco.org (2016), <<https://whc.unesco.org/en/news/1483>>.
13. Cicevic, H., 'Methods, Techniques and Approaches to Post-War Architectural Reconstruction' , *UF Journal of Undergraduate Research*, 20/3 (May 2019), 3-17.
14. Fethi, I., 'Iraq destroyed cultural heritage' ,TEDxBa-ghdad (2012), <<https://www.youtube.com/watch?v=x34lj6xChOk&t=16s>>.
15. Hadžić, D., Molnár, T., 'Post conflict reconstructions in Bosnia and Herzegovina' , *Pollack Periodica*, 14/1 (2019), 21-30.
16. Hoteit, A., 'War against architecture, identity and collective memory' , *International Journal of Development Research*, 5/2 (2015), 3415-3420.
17. Hussein, S., Abdulla, Z., Salih, N., 'Urban regeneration through post-war reconstruction: Reclaiming the urban identity of the old city of Mosul' , *Periodicals of Engineering and Natural Sciences (PEN)*, 7/1 (2019), 294-301.
18. Ibrahim, A., Al-Rubaie, A., 'Modern revamp threatens to raze riverfront in Mosul's Old City' , Aljazeera.com (2019), <<https://www.aljazeera.com/features/2019/7/14/modern-revamp-threatens-to-raze-riverfront-in-mosuls-old-city>>.
19. United Nations, 'Iraq: UN refugee agency opens twelfth camp as displacement escalates in west Mosul' , (2021), <<https://news.un.org/en/story/2017/05/557202-iraq-un-refugee-agency-opens-twelfth-camp-displacement-escalates-west-mosul>>.
20. Iraqi State Board of Antiquities and Heritage, 'Old City of Mosul' , (2018), <<https://whc.unesco.org/en/tentativelists/6355/>>.
21. Isakhan, B., Meskell, L., 'UNESCO's project to 'Revive the Spirit of Mosul': Iraqi and Syrian opinion on heritage reconstruction after the Islamic State' , *International Journal of Heritage Studies*, 25/1 (2019), 1189-1204.
22. Khaled, O., 'Travel Postcard: 48 hours in Aleppo, Syria' , Reuters Life (2010), <<https://www.reuters.com/article/us-travel-aleppo-idUSTRE66F1ED20100716>>.
23. Kullab, S., 'Iraqis slowly rebuild Mosul, with little aid from government' , AP NEWS.com (2020), <<https://apnews.com/article/international-news-islamic-state-group-iraq-7833d6cdd0f8ae2ac189e388f62571e7>>.
24. Kundera, M., *The Book of Laughter and Forgetting* (France: The exile publishing house, 1979).
25. Magdy, E., 'Christians of Mosul, Iraq, Still Displaced' , Thetablet.org (2019), <<https://thetablet.org/christians-of-mosul-iraq-still-displaced/>>.
26. Maurel, C., 'L'action de l'Unesco dans le domaine de la

- reconstruction', *Histoire@Politique*, 19/1 (2013), 160-175.
27. Misra, A., 'Afghanistan: The politics of post-war reconstruction', *Conflict, Security & Development*, 2/3 (2002), 5-27.
28. Munawar, N., 'Reconstructing Cultural Heritage in Conflict Zones: Should Palmyra be Rebuilt?', *Ex Novo: Journal of Archaeology*, 2/1 (2017), 33-48.
29. Oktay, D., 'How can urban context maintain urban identity and sustainability?: Evaluations of Taormina (Sicily) and Kyrenia (North Cyprus)', *Unior* (2006), <<http://webjournal.unior.it>>.
30. Soufan, A., 'Historiographical Overview on the Post Conflict Reconstruction in Syria: From the mid-19th Century to the 2011 Crisis'. UNESCO, (2015), <<https://whc.unesco.org/en/events/1286/>>.
31. The National, 'Three years after ISIS, Mosul residents still waiting to rebuild', *The National News* (2020), <<https://www.thenationalnews.com/world/mena/three-years-after-isis-mosul-residents-still-waiting-to-rebuild-1.1047089>>.
32. United Nations Human Settlements Programme 'The Initial Planning Framework for the Reconstruction of Mosul', *UN-Habitat*, (2018).
33. Woods, L., 'WAR AND ARCHITECTURE: Three Principles', *lebbeuswoods* (2011), <<https://lebbeuswoods.wordpress.com/2011/12/15/war-and-architecture-three-principles/>>.

Chapter IV

01. Barot, S., Etienne, C., Couchaux, D., Miossec, Y., *Le Havre* (Rouen: Inventaire general spadem, 1994).
02. Bianca, S., *Urban form in the Arab world* (London: Thames & Hudson, 2000).
03. Caruso, A., Thomas, H., Binet, H., *Rudolf Schwarz and the monumental order of things* (London: Westbourne Grove, 2016).
04. Lim, S., 'Conservation Principles and Strategies in Safeguarding the Heritage Buildings', *Fliphtml5.com* (2020), <<https://online.fliphtml5.com/wnbti/ilmq/#p=1>>.
05. Diefendorf, J., 'Urban Reconstruction in Europe After World War II', *Urban Studies*, 26/1 (1989), 128-143.
06. Rogers, E., *The sense of history* (Milano: Edizioni Uni-

- copli, 1998).
07. Marco, P., *L'Architettura di Ignazio Gardella* (Milano: Etas Libri, 1985).
08. Hristic, D., Stefanovic, N., 'The Rebuilding of Memory Through Architecture: Case Studies of Leipzig and Dresden', *Journal of Urban Culture Research*, 20/1 (June 2020), 97-111.
09. Jager, W., Brebbia, C., *The revival of Dresden* (Southampton, WIT Press, 2000).
10. Jeleski, T., 'Practices of Built Heritage Post-Disaster Reconstruction for Resilient Cities', *Buildings*, 8/4 (2018), 53-73.
11. Tafuri, M., *Storia dell'Architettura Italiana* [History of Italian Architecture] (Torino: Giulio Einaudi editore, 1989).
12. Hohensee, N., 'Critical Reconstruction and the Rebuilding of Berlin after 1990', PhD thesis, City University of New York, New York, 2016, <https://academicworks.cuny.edu/gc_etds/1508>.
13. Pouillon, F., Dubor, B., *Fernand Pouillon architetto delle 200 colonne* (Milano: Electa, 1987).
14. Bradley, N., 'Identity Construction in Europe: A Discursive Approach', *Identity*, 10/1 (March 2010), 50-68.

Chapter V

01. UNESCO, 'The architectural competition for the reconstruction and rehabilitation of the Al Nouri Complex in Mosul'. UNESCO, 2020, <<https://en.unesco.org/news/architectural-competition-reconstruction-and-rehabilitation-al-nouri-complex-mosul>>.
02. Domenico Chizzoniti, 'Rewriting and city structure'. *Magazine del Festival*, 2021, <<https://www.archdaily.com/959744/meet-the-winners-for-the-reconstruction-and-rehabilitation-of-mosul-al-nouri-complex>>.
03. Ethel S. W., 'Cultural heritage sites in Mosul and surrounding areas'. *Remembering Mosul*, 2021, <<https://rememberingmosul.org/>>.
04. Omar Mohammed, 'The Suqs of Old Mosul: The complexity of time and space'. *patrimoinedorient*, 2021, <<https://patrimoinedorient.org/index.php/en/2021/05/12/the-suqs-of-old-mosul-the-complexity-of-time-and-space/>>.
05. Lily Cao, 'Meet the Winners for the Reconstruction and

Rehabilitation of Mosul's Al Nouri Complex'. Archdaily, 2021, <<https://www.archdaily.com/959744/meet-the-winners-for-the-reconstruction-and-rehabilitation-of-mosuls-al-nouri-complex>>.

06. NABIH BULOS, W.J., 'Iraqi officials say Islamic State destroyed historic mosque and minaret in Mosul, Los Angeles Times'. 2021, <<https://www.latimes.com/world/middleeast/la-fg-iraq-mosul-mosque-20170621-story.html>>.

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Fig. 1.03 - Retrieved from https://commons.wikimedia.org/wiki/File:Nineveh_-_Mashki_Gate.jpg.

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Fig. 1.05 - Retrieved from https://madainproject.com/gates_of_nineveh.

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Fig. 4.14 - Mamoli, M, Trebbi, G, *Storia dell'Urbanistica L'Europa del Secondo Dopoguerra*, EditoreLaterza1997, p. 106.

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Fig. 5.43 - Elevations of Souq Complex, Made by the author.

Fig. 5.44 - Elevations of The Reconstruction of Mosque, Made by the author.

Fig. 5.45 - Axonometric View, Made by the author.

Fig. 5.46 - 3D Section, Made by the author.

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Fig. 5.55 - Perspective Views, Made by the author.

Fig. 5.56 - Perspective Views, Made by the author.

Fig. 5.57 - Perspective Views, Made by the author.

Fig. 5.58 - Perspective Views, Made by the author.

Fig. 5.59 - Perspective Views, Made by the author.

Fig. 5.60 - Perspective Views, Made by the author.

Fig. 5.61 - Perspective Views, Made by the author.