



## **1 – Researches on Pisa *Spedale Nuovo***

Several scholars dealt with Santa Chiara hospital since its creation and during its development. However, none of these chroniclers, historians and even doctors ever addressed an organic study on the several construction and strengthening steps which involved this hospital over the centuries within the city.

Such study entails incidental difficulties first of all due to a poor historic and record documentation on the first centuries of Pisa *Spedale Nuovo* and to the lack of targeted archaeological researches and excavations based on advanced Medieval archaeology techniques; these would certainly enrich currently available knowledge as well as bring a scientific evidence to knowledge derived from historical researches, records, and data reported on “*views*” and early “*city plans*” which not always provide reliable information on urban conditions at that time. Secondly, this building complex, over seven centuries old, underwent several radical transformations in terms of demolitions, reconstructions and extensions of individual buildings, as well as changes in the complex as a whole and in relationship with the city structure.



## 2 – A huge city “hospitale”

Similarly to other cities with a Medieval layout, Pisa city hospital is still placed where it was originally founded on Pentecost day of 1257, in front of Piazza del Duomo, a place standing as a symbol of Pisa power as a city state.

Today's third-millennium city is facing the issue of relocating its hospital base to wider spaces and more technologically advanced buildings that should also be provided with adequate accessibility and usability services. The hypothesis of relocating the hospital to Cisanello area unavoidably poses the serious, critical question on how to reuse the *Spedale Nuovo* buildings, which cannot prescind from an accurate historical interpretation of its architectural structures as well as from an analysis of the transformation process which led to the urban strengthening of this city area over the centuries.

The etymology of the word “ospedale” (hospital) is uncertain. However, its meaning is probably derived from the Latin term “*hospes*” i.e. "guest". Since ancient times, the word “*hospitale*” ('hospitable') has been a generic term indicating the will to offer a certain kind of hospitality to a *peregrinus* (i.e. 'foreigner', 'stranger'), which was not only connected to medical care.

The word “*Spedale*” has been commonly used as a popular term (or at least, as a popular word in Tuscan dialect) from Middle Ages through modern times, when it was finally replaced with “ospedale”.



During Middle Ages, early *Ospizi* (Hospices), *Pellegrinai* (places where foreigners and strangers were hosted) and *Spedali* were created with the churches they were commonly annexed to, as a concrete, heartfelt expression of a vivid religious faith. Anyway, the several small *Spedali* which rose in Pisa and surrounding areas also originated from further historical and politic causes, which were so explained by historian A. Feroci in his 1896 work "*Degli antichi Spedali di Pisa*" ("About Pisa ancient Spedali"): "...the many people that gathered into the city, the strangers who came from far-off places - as one may deduce from both historians and poets – the many sailors, and the frequent war feats that often occurred there had to provide for a large number of sick people; therefore, *Spedali* greatly grew in number as churches did... "

Manuscript chronicles formerly belonging to the Uppezzinghi family reported that Pisa and its countryside counted as many as four hundred, eighty-six churches, chapels and hospitals in 1200.

At that time, medical care was provided by monks, who devoted themselves to the study of medical sciences in addition to their apostolate and prayers. There were very few secular doctors who also lived in abbeys and convents. Burgundio (1110-1194) a doctor who was born and lived in Pisa until his death, wrote fundamental works including translations of Galen and Hippocrates. This was not only important for his contemporary colleagues, but it was also used as a guide for a new Italian surgery school created by Mastro Taddeo (Master Thaddeus) (1223 – 1303).



### **3 – The events which led to the foundation of *Spedale Nuovo***

The several hospitals of Pisa were united in one single *Spedale Nuovo* because of a war feat and constituted the result of a long, hard effort aimed at reconciling the Apostolic See with Pisa municipality.

One should not forget that the period between 1240 and 1260 was a very turbulent one, characterised by never-ending factious fights which followed one another between the papal armies and the troops supporting Swabian Emperor Frederick II; as a strongly Ghibelline city, Pisa supported this latter.

In May 1241 Pope Gregory IX who was involved in a fierce conflict with the Emperor, called a council in Rome with the intent of dethroning his rival; but Frederick II, who became aware of the Pope's intentions, formed an alliance with the Republic of Pisa and persuaded its fleet to confront the fleet of the Republic of Genoa, hosting Papal Legates. In its "*Annali Pisani*" ("Pisa Reviews"), Paolo Tronci described at length the gory sea battle which took place between the Pisan and Genoese galleys on the 3<sup>rd</sup> of May 1241 in the sea stretch between the islands of Giglio and Montecristo.

Frederick II fully achieved his goal: several clergymen were killed, others were captured and held prisoners for three years in Pisa Parsonage. For this reason, Pope Gregory IX was unable to call a general council. This serious episode, along with other prior antipapal actions carried out by the Pisa municipality, caused an immediate reaction of Papacy: scored off and indignant Pope issued a heavy excommunication



against Pisa, and the city suffered a ban and revocation of all the privileges it had been granted by the Holy See during the previous centuries.

Pisa remained in this hard situation - which was a difficult one for several reasons beyond religion – for several years, also after the Pope and Emperor were dead.

In 1254, Federico Visconti was elected Pisa bishop. He suddenly bestirred himself in order to obtain mercy for the excommunication. A few months later, Alessandro IV ascended the papal throne. A meek person, Pope Alexander IV would not interfere with the Guelphs and Ghibellines, so he moved aside. As the situation calmed down, Pisa municipality deemed it appropriate to request an absolution from the excommunication with the intercession of Papal Legate Friar Mansueto Tanganelli, who succeeded.

With a Bull issued in March 1257, Pope Alexander IV granted his forgiveness and cancelled the excommunication over Pisa at two main conditions, of which one had a political connotation, and the other was an administrative one: the Pisans had to do public penance and swear that they would never hinder the doings of Cardinals and Papal Legates, as well as recognise as Emperors only those having the Pope's approval; moreover, they had to undertake the construction of a new *hospitale* with 10,000 liras in “small florin” (*denari*) coins<sup>1</sup>.

---

<sup>1</sup> *Lira* was an ancient currency which was chosen to equal the weight of a golden florin (*florino d'oro*) of Florence in local money of account. One *lira* was worth 240 small florins ("*denari*") [Translator's Note]



The Pope entrusted Friar Mansueto to choose of a place to build the new *Spedale*. He chose an area in Ponte district, close to piazza del Duomo, which had been used as a garden until that moment.

As reported in a notary document of that time, the *spedale* should be founded “...either inside the city or in a suitable place in its proximity...”; Friar Mansueto stipulated that “...the hospital had to be built close to the square of Pisa Chiesa Maggiore within these boundaries: along Chiesa Maggiore square; along Paludozeri new road, the other public road and that bordering Pisa city walls... .” The Town Council would purchase the land and mark its perimeter by digging a pit running along the southern side of the square that served as a landmark for the *spedale* area.

It is thus evident that, in such an occasion, not only the city authorities were taking note of Frair Mansueto's choice for *Nuovo Spedale*, but was also starting a new policy of works aimed at arranging the city area surrounding the cathedral, baptistry and bell tower which were built between 1064 and 1174 to be included inside the city walls during mid XII Century.

Showing a total resignation to the Pope's will, Pisa accepted all the conditions stated in the Apostolic Bull and prepared to the plenary forgiveness of all censorships and disqualifications due on Pentecost day of 1257.

The ceremony included the celebration of a High Mass at the Church of *S. Francesco dei Minori Conventuali* in the presence of ecclesiastic authorities and the whole town of Pisa; after such solemn ceremonies, the city authorities and population walked



in procession to the place where the *Spedale Nuovo* would be built, and laid the foundation stone.

An ancient city chronicle goes: “.....*during that same year the land was built, foundations and walls were laid and several thousand florins were paid, and the design was square with around 30 loggi ('loggias')...*”

The fact that the land was donated by the Pisa Town Council should be interpreted as a will to devote a great, attentive care to the urban enhancement of piazza del Duomo; at that time, in fact, building a huge, autonomous hospital independent of the Church constituted a symbol of concentration and valorisation, not only on the social level, but under the architectural and urban planning as well.

Several other preservation and urban-planning building works reflecting this same policy were made; these made it impossible to build any constructions between the baptistry and *Nuovo Spedale*, as well as between the latter and St. John church, and in the proximity of the *Spedale* itself.



#### 4 – The early centuries of *Spedale Nuovo*

After the laying of foundation stone, construction works immediately started with diligence and were regularly continued during about eighty years.

Documents clearly reveal that the area marked by the builders was squared. Once completed, the *Spedale* would be a perimeter building with a small tower for each corner, with each side measuring 750 Italian Fathoms<sup>2</sup> (435 m) in length. Based on these indications, one may infer that the foundation square internal area measured about 22,550 square metres and each side between corner towers measuring 120 meters in length approximately.

The peculiar relationship between the Pope and *Spedale Nuovo* he had promoted was confirmed in a set of rules and privileges granted to the Pope himself, both during the year of foundation and later; in order to facilitate building works and use excellent materials, the Pope issued a special Bull that allowed the Pisans to use deal wood from Garfagnana Papal lands.

Though so planned in the *Spedale* original design, not all the space included in the quadrilateral was immediately developed. According to some sources, a huge hall used as marble storehouse during monument construction (Cathedral, Baptistry and Bell Tower) existed close to the northern side facing Piazza del Duomo. Since the first construction was erected along this side – as testified by a thirteenth-century structure still standing there – there exists the possibility that this was simply restored rather than built anew.

---

<sup>2</sup> *Italian (or Tuscan, or Florence) fathom*: an ancient measurement unit equalling 0.58 metres [Translator's note]





Apart from this, there remains the fact that this early building – today hosting a Museum of *Sinopia*<sup>3</sup> – soon became a huge “*pellegrinaio*”, which is a home for the sick as well as for the many pilgrims and foreigners who crossed Pisa bound for Rome.

At the same time when the *pellegrinaio* (which frescoes were painted by Coluccio da Lucca) was built, the chapel was one of the early buildings erected within the quadrilateral. There, a chaplain already served daily in 1277; this chapel was devoted to the Holy Spirit, but only few years later a new chapel built in 1338 and devoted to St. Chiara appeared into records. It is still unsure whether this latter was built anew or simply was a reconstruction. The whole hospital was subsequently named after this chapel.

In 1277 the *Spedale* graveyard was also consecrated; according to an historical reconstructions, a wall had been built to enclose the garden connecting the two southern corner towers two years before.

There are other internal buildings reported since 1250s: two “*houses*” (domus): a “*main house*”, hosting the *Spedale* Rector's *hall* with a granary on the upper floor; and one more house referred to as “*close to the main house and faced south*”; a mill, a baker's and a cellar (“*cellarium*” in Latin) could also be found inside the walls.

Late 1200s documents also report the existence of a “*pellegrinaium pauperum*” (“shelter of the poor” in Latin), a reception centre for the poor, and a “*pellegrinaium novum*” (“new shelter”) which was being built in 1286, though this might have only been an extension of the former; however apparently, the first extension works were carried out on the building height.

---

<sup>3</sup> *Sinopia* is a reddish-brown colour used in early 1500s for frescoes cartoon or underpainting.



Though part of the land of *Spedale* Nuovo should have been used to ensure its economic independence, it was soon clear that these would not be enough to cover the hospital expenses; therefore, a Papal Bull was issued in 1258 ordering the suppression of the several secondary hospitals of Pisa and Pisa countryside and granting all funds to the *Spedale* of Pope Alexander IV. This decision was hard to implement on the short term, while it led to a growing strengthening of *Spedale Nuovo* on the long term. Smaller hospitals decreased in importance, also due to the many contributions required by the *Spedale Nuovo*. In late 1800s, the *Trovatelli* hospital was annexed to the *Spedale nuovo* and, in memory of origins, this new complex was given the name of *Spedali Riuniti di S. Chiara*.

During 1200s and 1300s, the *Spedale Nuovo* experienced a strong economic growth, and in its capital in particular, thanks to charity, legacies, donations, and oblations.

During these Centuries, medical treatment was a task for “*conversi*” (“lay brothers”) living either within the *Spedale* building – in the “*cloister*” – or “*outside the cloister*” in houses also belonging to the *Spedale*. Lay brothers also had the task to care for gardens and carry out handicraft activities; the clergymen also worked in the *Spedale*, mainly performing administrative tasks and patients care.

The managing of the *Spedale* was generally carried out by one of this *frates*, known as “*Maestro*” (Master) or “*Rettore*” (Rector), the first of whom was Friar Mansueto Manganelli; hospital workers appointed by the Pope followed one another from 1257 to 1546.



Willing his hospital workers to be immediately recognisable, Pope Alexander IV ordered them to wear a special sign on their robes: it was a red Papal monogram which design was included in a special Papal Bull. Composed of "A" and "E" capital letters, the initials of Alexander Episcopus, this symbol can still be found today on many escutcheons inside the *Spedale Nuovo* buildings.

The first important deed in which the construction of Spedale Nuovo is illustrated dates back to early 1300s: it was the “*record of foundations and privileges of the Spedal Nuovo*” written by a certain Friar Peter, the *Spedale* Rector at that time; according to his idea, the most important documents dealing with the foundation of the hospital should have been passed on to posterity.

No documents dealing with any construction works inside the quadrilateral exist, until early XVII Century; on the contrary, there exist several documents about the administration and management of the *Spedale Nuovo* which also allowed to retrace the ever growing number of Spedale properties outside its perimeter.

A 1327 inventory for Pope John XXIII reported that Spedale Nuovo owned one hundred and twenty-seven houses inside the city and thirty-seven emphyteusis lands, which were totally worth nine thousand and six hundred florins.



## 5 – From 1400s to the Unification of Italy

The wars characterizing 1400 in Tuscany, and particularly Pisa subdual to Florence in 1405 with a consequent general decay which lasted during the whole century, also affected life in *Spedale Nuovo*; several friars left the hospital, while several others were alienated in favour of the winning city.

The hospital now had Florentine rectors who were frequently lay and inexperienced, and managed the hospital capital for the sake of their own interests. Meanwhile, the number of friars managing the *Spedale* decreased more and more: in 1467 only one friar still had administrative tasks.

In 1537 Cosimo I de' Medici ascended to power, and started significant hospital reforms; in 1545 he subordinated Pisa Spedale Nuovo to Florence S. Maria Nuova; this lasted until 1771. During such period, the Spedale was led by Bishops known as "*Spedalinghi*"; in total, 19 of them guided the hospital and their escutcheons can still be found and admired on the upper side of courtyard arcaded loggia called "*Cortile degli Spedalinghi*" (*Spedalinghi* Courtyard) at the current entrance of the Spedale from Via Solforino, today's Via Roma.

Thanks to *Spedalinghi* the *Spedale Nuovo* experienced a rebirth not only on the economic level, but on the scientific level as well; *Spedalinghi*, in fact, favoured the study of anatomy and founded a surgery school.

In what deals with building, the *Spedalinghi* tried to improve building usability and healthiness. In particular, they built new rooms and service facilities, and improved nurseries by raising pavilion roofs.



An analysis of early Pisa plans – mainly perspective views later than the XVII Century – one may see that, until 1640, the *Spedale* was pictured as a single block facing piazza del Duomo, while a smaller, different building can be seen inside the quadrilateral: it could be the *main house*.

The whole quadrilateral was enclosed in a wall, though no corner elements might let one imagine the existence of "small towers" excluding the corner between Duomo and Via Solferino where a tower was included in the building, just like one can see it today; at the corner between the southern and eastern side, where the church of Santa Chiara stands today, there was one more building, almost certainly old church of S. Chiara, considering that today's church is a reconstruction dated 1784.

The stately block placed on the northern side in front of piazza del Duomo is a reconstruction and extension of thirteen-century *pellegrinaio*, also called ward of S. Spirito, which hosted nurseries and pavilions, while the other internal building was probably used either as a residence for Spedalinghi or as a convent of Oblate sisters, the S. Chiara nuns who assisted the sick.

A 1640 etching by M. Merian shows for the first time a view of Pisa where a further building can be seen in addition to the huge block facing Piazza del Duomo, it is a building which long side overlooks Via Solforino, today's Via Roma; the arcaded loggia incorrectly dated by Casini between XV and XVII centuries in his 1961 "Guida" had not been built yet.

A significant extension inside the *Spedale* area occurred during the Grand Duchy of Tuscany, consequently to the social and politic rebirth experienced by the city



during those years (1546 – 1778). A new ward (S. Ranieri) which stretched along the southern side, was built; this was added to the already existing ward of S. Spirito which covered the northern side. This latter was used as men's ward, while the other was destined to women.

The observation and analysis of eighteenth-century plans clearly show the significant development happened between 1600s and early 1700s. In 1750 the original quadrilateral had building spread its whole area.

When the last Grand Duchy Giangastone de' Medici died in 1737, Tuscany was subdued to the Austrians. Francis Stephen of Lorraine was the first foreigner prince of this new era. His son and successor Peter Leopold undertook an innovative policy which entailed the suppression of all convents and religious congregations as well as the alienation of capitals from all *Spedali*.

Significant changes thus occurred in treatment areas, which were completely subject to and monitored by a central authority. The sale of capital goods caused the economic condition of Pisa *Spedale Nuovo* worsen once again.

In 1771 Leopold I finally detached Santa Chiara *Spedale Nuovo* from Florence hospital of S. Maria Nuova; the hospital direction passed on to lay Commissioners under the direct control by the Grand Duchy.

During Leopold's principedom, the Spedale underwent several significant modifications, though its facilities were kept inside the original quadrilateral: several buildings were renovated, a new ward (S. Leopoldo) was built as an extension of the



already existing ward S. Ranieri. The church of S. Chiara was rebuilt and completed in 1784.

Dating the cloister is a more difficult task, though an analysis of cartographies allows to suppose that it was built in late XVIII Century.

According to historians, the 1846 “*Carta della Città di Pisa*” (Plan of the city of Pisa) by Giacinto Van Lint – the first attempt to provide a faithful territory representation – may constitute a fair approximate representation of the development of Pisa and its hospital during early 1800s.

After the significant construction works undertaken during the Lorraine period, no important interventions were made during the XIX Century; late-1800s cadastral records show that small extensions and reconstructions were carried out which did not change the thirteenth-century original layout.



## **6 – The great development of XX Century**

After the unification of Italy and within the subsequent general reorganisation, several laws were ratified on the administration of hospitals: the general fund cash was suppressed; from that moment on, the management and direction of hospitals was not subject to governments anymore. Therefore, hospitals - still led by Commissioners - became entities with a town and provincial character.

In 1883, the City Town Council drafted a Final Statute, the first since the unification of Italy; the hospital was acknowledged as a “moral and law entity subject to national laws on the matter”.

Based on its new set of rules, Pisa Town Council appointed its first Administration Council in 1884.

Building innovations on the thirteenth-century original quadrilateral had been few and moderate. The Spedale Nuovo of Santa Chiara was still enclosed within its walls.

Between late 1800s and early 1900s, thanks to the enthusiasm of young Italian nation and also to the significant developments reached in medicine, Piedmont's Engineer Crescentino Caselli led the first extension of hospital facilities beyond foundation area. New clinics and pavilions were built over the wide area west of city walls.

Caselli's design implied a change in the whole scale of the hospital areas since its foundation seven centuries before, with new clinics (ophthalmology, surgery, psychiatry) and a series of service pavilions (boiler rooms, laundries, ...); the new





building complex was completely connected by a set of covered passageways that allowed to go from one clinic to the other without going out; this last function was a very advanced solution for those times. In addition the plan included an accurate reorganisation of all the existing buildings, with solutions more adequate to this new period.

Unfortunately, the extension design was not completed; as one can see comparing design drawings and the buildings existing today within S. Chiara complex, a Surgical Clinic (the first building in Pisa having a concrete structure), the isolation pavilion and other service pavilions were built, though the buildings were not reorganised and the covered passageways that had been a focal point in the design were not built.

At the dawn of the new century, a peculiar problem arose for the administrators: treatment of consumptive patients, a disease causing several deaths and worrying the national responsible for Hygiene and Public Health.

This issue also reached the Spedali Riuniti di S. Chiara. However, since no suitable rooms were available within the hospital area, a Sanatorium was built in Cisanello, a nice, quiet suburban area very close to the urban centre which would constitute an ideal place for patients thanks to the proximity of the Arno river, and its tree-lined alleys.

In 1906, the new Sanatorium started operating regularly and was eventually extended by a new pavilion built by the National Italian Institute for Social Security (INPS).



The opening of the Sanatorium in Cisanello relieved the situation at the *Spedale* in terms of beds. However, the functional issues already existing in the facility remained unsolved.

The several inventions and a consequent civil progress that characterised the new Century, along with the devastating effects of the First World War, led to a massive increase in hospital requirements, also spurred by new social needs, since public health services in Italy was unceasingly developing to fit new standards in the medical and social fields.

Mothers, children, disabled, insane, and industrial diseases now had to be dealt with as well.

Hospital wards were too small and there were too few clinics compared to the latest scientific discoveries.

The issue of a total reorganisation of buildings reappeared in the aftermath of the First World War. Plans included the demolition of some of them, the adaptation of some others to suit new requirements, and reconstruction in other cases.

At last, after a five-year study an agreement between the Fascist Government and Local Authorities was reached in 1930: such agreement envisaged the completion of building works within Pisa University and annexed Institutes.

Works consisted in the final arrangement of University, S. Chiara Hospital, Institutes of Agriculture, Veterinary Medicine, Normale University and a new base for the Engineering School.



In what deals with the works involving university clinic buildings, these included:

- A dermosyphilopathic clinic
- A paediatric clinic
- An isolation ward for such clinic
- Special surgery pathology
- Special medical pathology
- An otolaryngology clinic
- An obstetrics – gynaecological clinic
- The renovation of medical-surgery school
- A neuro-psychiatric clinic

Once the funds had been granted, works started immediately and lasted for a long period; they were interrupted in 1940 due to the outbreak of the Second World War, which caused the plan to stop.

Anyway, the dermatology clinic, the obstetrics-gynaecological clinic, the neuropsychiatry, and ophthalmology clinic were completed.

The 1918 demolition of city walls along Cittadella and piazza del Duomo allowed to develop these new hospital buildings, that covered a very wide area and stretched beyond the ancient city perimeter reaching Via Bonanno Pisano.

The war was rather burdensome for the hospital: several members of nursing staff got call-up papers; food and drugs supply was poor; a continuous bombing – which reached their peak during ghastly August 1943 – put a strain on the whole city.



After the War, the Administration Council appointed in 1946 had to cure the wounds caused to the hospital by the war in terms of capital, services, and equipment.

From the perspective of building development, Santa Chiara *Spedale* has not undergone any significant interventions on the layout it acquired during the 1930s from the postwar period until present.

S. Leopoldo (1959) and S. Ranieri wards (1966) were respectively replaced with a Radiological Institute and a Neurosurgery clinic with the second medical unit. This represents the only occasion in which an intervention inside the hospital complex – caused by the need of new, more functional clinics and facilities – led to the destruction of historically important buildings, both from the architectural point of view and as an interpretation of city development.

Excluding such intervention, the area occupied by the Spedale has been slowly strengthening itself within the city environment over the years. Today, it shows two ambivalent, opposite aspects.

On the one hand, the hospital stands within the city walls and is thus a part of the “historical centre”; in this sense, it should reflect the Medieval city layout with closed blocks. Actually, the hospital represents an exception: road and parcels designs have been both lost; on the other hand, this area represents a connection – and thus, interaction - between the historical town and nineteenth-century suburbs, through the interpenetration between the areas inside and outside the walls.



## 7 – An iconographical study of city plans

The iconography of city plans approximately represent the existence of city buildings within the city. These, along with nineteenth-century cadastral documents, allowed to deduce the evolution of the Spedale original layout.

1500 and 1600 etchings show that the hospital area includes gardens and a symbolic rectangular building which façade overlooks “Via Nova” and northern side faces Piazza del Duomo.

Other etchings show more sets of buildings along the above-mentioned street forming an L-shaped building complex.

A third building can be seen inside the perimeter, probably depicting the church of S. Chiara.

Plans of 1700 depict the hospital more faithfully; here, the complex looks like a quadrangular block of buildings.

The Northern side development, at which end there was a portal in late 1600s, almost reached the door of adjacent Monumental Cemetery.

A plan of 1831 shows the latest building added on the western side of the complex.

The 1950/60s demolitions also entailed the destruction of the quadrangular perimeter enclosed by the towers.

Since that moment and until present, the hospital facilities only kept their original functions with respect to architectural values, since they underwent a



continued process of functional changes with several works and renovation interventions.

The construction of *Spedale Nuovo* between 1257 and 1263 was guided by Giovanni di Simone; few years later, a Graveyard was also built.

The square plan, which sides varied in a range of 100 meters (740 Italian Fathoms) was characterised by four corner towers.

Today, the perimeter of the original hospital can still be seen in the remains of such towers, one of which is still well preserved between Via Roma and Piazza del Duomo. Traces of two more towers can still be seen on the southern side, where ancient elements were destroyed.

The fourth tower overlooked Piazza del Duomo, but it was moved horizontally. The tower was moved by 25 metres in order to reach a new symmetry compared to the original plan: such symmetry resulted in the plugging the arch corresponding to a facing arch still visible on the eastern side of Duomo. A new arch was built to the right of the old tower.

The still preserved corner tower is a protruding construction with a stone base and brick-wall body; the building has a single-lancet window with a terracotta horseshoe arch and overhanging, rough ferrule.

The windows facing the northern side were added during the 1600s renovation ordered by the Medici family; the arch plugging is still easily visible today, after the renovation of the Sinopia Museum brought it back to light.



The same renovation intervention unveiled original thirteenth-century single-lancet windows which were used at that time in the rooms used as a site during the construction of the *Duomo*.