

# The Church of St. Maria and St. Stefano on the Hill of Pionta, Arezzo – Italy

## Studies, comparisons and hypothetical reconstruction

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**Abstract:** The area known as the Hill of Pionta, is located outside the line of the ancient walls of Arezzo - Tuscany and it was a walled, independent citadel, governed by bishops. The presence of this fortify hill was dangerous for the near city of Florence and in 1561 Cosimo I de Medici decided to destroy it. Through the centuries many interventions have rearranged the terrain of the Hill of Pionta and only starting from the 1960 two archaeological excavations campaigns were started: at the end were brought to light the ruins of the Romanesque church of St. Maria and St. Stefano and minor remains. However a large part of this settlement is still unclear also because the aspect of the area is barely testified just by some later paintings. In 2014 new researches about this area have been started thanks to the Cultural Association “Academo, Roberta Pellegrini” supporting the “Dipartimento di Architettura” of the Florence University. Starting from a new survey of the area using Drone Photography, 3D Laser Scanning and a Total Station has been provided the state of the ruins. From this we start to make some hypothesis about the original aspect of the Church of St. Maria and St. Stefano, known as the "Duomo Vecchio", using the position of the walls, the photos of the excavation campaigns and the comparison with churches similar for time and space. With the use of a 3D modelling software the hypothesis have been turned in a virtual 3D model, textured with the original mosaics and other supposed materials; this reconstruction will be useful to carry on studies and to spread and disseminate awareness of the Hill of Pionta and to compare past, current and future studies of the Duomo Vecchio of Arezzo, of which there are only a few traces.

**Keywords:** Hill of Pionta, Arezzo, survey, reconstruction hypothesis, 3D modelling

## Introduction

The research presented is the result of a work started in May 2014 with a digital survey of the archaeological remains on the Hill of Pionta, Arezzo. The study continued first with data-treatment and elaboration to obtain architectural drawings of the actual state of the area. Subsequently it proceeded in two main directions. The one here explained is based on different comparisons aimed to create a hypothetical reconstruction of the original configuration of the Ancient Cathedral of Arezzo: the Church of St. Maria and Stefano.

## **Arezzo and the "Hill of Pionta": historical overview**

The city of Arezzo is located in middle part of Italy, in Tuscany. The city rose in pre-Etruscan period, in an area inhabited since prehistoric times. There are reports of permanent pre-Etruscan settlements in an area not far from the current urban area, the hill of St. Cornelius. Later, the Etruscan settlement was built on the hilltop of San Donato, occupied by the actual city.

The existence and the importance of Arezzo so are documented since the IV-III century B.C., when it was one of the twelve administrative centres of the Etruria Confederation.

According to Massimo Pallottino<sup>1</sup>, an Italian archaeologist, Arezzo between the IV and the III century BC was one of the major cities of Italy, maybe the third after Rome and Capua, with the ancient Via Cassia linking it with the Northern part of Italy.

## **The Origins of the Hill of Pionta as the Christian Centre of Arezzo**

The name Pionta, a hill with an ancient history as the city to which it belongs, comes from the Lombard "biunda" and it means "fenced area": at the time this name maybe refers to the fencing of a rural area, in fact only during the Carolingian reign the hill will be surrounded by fortified walls.

During the first half of the III century AD a strong and organized Christian community found place in Arezzo and started carrying out its celebrations and creating cemeteries for burials. This community will go on until the city became Episcopal, with the first bishop St. Satyr in the first half of IV century AD.

During this period, Donato arrived in Arezzo from Rome, where he had been persecuted. In this city he was noted as a miracle worker and his skills became bishop after Satyr. For its ability to heal the infirms Quadriziano persecuted and executed him, who died as a martyr on August 304 AD.

San Donato was succeeded by Bishop Gelasius that, on the grave of the martyr in Pionta, built the first church. Until now it is still not known, where this small oratory was placed, documentary news tells that it was located near but outside of both the Church of St. Maria and Stefano, focus of the study, and of the Temple of San Donato, whose location is still not identified.

With the construction of the oratory, memory of San Donato, the Hill of Pionta became the heart of Christianity in Arezzo. In the oratory was formed the Episcopalian seat of Arezzo, that remained on site until 1203 when the remains of San Donato were moved in the current cathedral of Arezzo<sup>2</sup>. From this moment is documented the simultaneous presence on the Pionta Hill of two main religious buildings, the Cathedral of St. Maria and St. Stefano and the Martyrion<sup>3</sup> of S. Donato<sup>4</sup>.

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<sup>1</sup> Tafi Angelo, Pionta, il Vaticano Aretino, Cortona, Calosci, 1995, p.26

<sup>2</sup> Melucco Vaccaro Alessandra, Arezzo. Il Colle del Pionta. Il contributo archeologico alla storia del primitivo gruppo cattedrale, Arezzo, 1991, p.29

<sup>3</sup> The Martyrion is a typical Early Christian Chapel dedicated to a martyr and sometime placed on the place where he died

<sup>4</sup> Tafi Angelo, Pionta, il Vaticano Aretino, Cortona, Calosci, 1995, p.29

From the results of the excavations of 1970-74, we know that they are based on a cemetery, and that the cathedral was built between 650 and 840.

Mons. Angelo Tafi, author of one of the most reliable texts on the history of Pionta, wonders about how it was possible that the great Dioceses of Arezzo between the IV and VIII centuries had as cathedral only the small oratory of Gelasius (on this the archaeologist Melucco Vaccaro wrote: "It is certain that until the Lombard age the Episcopal seat was located in Pionta; so it must be assumed that the whole cathedral was not limited to the small chapel made by Gelasius"<sup>5</sup>). The question on the archaeological finds on the Hill of Pionta is difficult to resolve, especially with regard to the early-Christian cathedral, and this for many reasons: extremely late testimonies, lack of a whole exploration of the hill and various changes, interventions and manipulations on the excavations made during the last decades.

In the VIII century was documented the existence of a school for priests and in 840 Bishop Peter built a rectory in Pionta<sup>6</sup>, then the cathedral certainly existed before the document that mentions it in 939 BC (the archaeologist Melucco Vaccaro was not able to establish if the remains of the rectory were the walls next to the right nave of the ancient cathedral on the Hill of Pionta).

To try to find a solution that explains the history of Pionta, more excavations are quite necessary: remanding to future archaeological explorations, Tafi assumed that the first Christian cathedral in Arezzo was built in Pionta in the V century<sup>7</sup>. This assumption could be proved by the discovery of archaeological finds, which attest building activity in Pionta between V-VI centuries.

The archaeologist Melucco Vaccaro, after the exploration of the Area in 1000<sup>8</sup>, was able to establish that under the foundations of the cathedral of St. Stefano and St. Maria, built firmly between the 650 and the 840, was a burial ground dating from the VI century, which was in use until the mid-VII century. Even today, visiting the excavations it is possible to see the different types of tombs present.

In the VII century, thanks to the documents made by the bishops of Pionta we can go back to the existence of a school for Episcopal clergy existing since the second half of the VI century<sup>9</sup>.

At the time, the Hill of Pionta was the religious centre of Arezzo: several time a year priests and faithful from the dioceses and from all over the world arrived to the Cathedral and to the Church of St. Donato<sup>10</sup>.

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<sup>5</sup> Ibidem, p.50

<sup>6</sup> Melucco Vaccaro Alessandra, Arezzo. Il Colle del Pionta. Il contributo archeologico alla storia del primitivo gruppo cattedrale, p.29

<sup>7</sup> Tafi Angelo, Pionta, il Vaticano Aretino, pp.54-55-56-57

<sup>8</sup> The archaeologists have divided the whole area of the Hill of Pionta in five different areas, called Area 1000, Area 2000, Area 3000, Area 4000 and Area 5000. The Area 1000 is the main area with the remains of the Church of St. Maria and Stefano (Fig. 3)

<sup>9</sup> Ibidem p.70

<sup>10</sup> Melucco Vaccaro Alessandra, Arezzo. Il Colle del Pionta. Il contributo archeologico alla storia del primitivo gruppo cattedrale, pp.80-81

### **Apogee and Decline of the Christian Church of Arezzo on the Hill of Pionta**

Around the year 1000, Arezzo, with its great bishops Elemperto, Adalberto, Teodaldo and Immone, reached the top of a religious, cultural and artistic revival: in those years, Arezzo, and in particular Pionta, were a high spiritual place for all the Christian people of the West. To Elemperto (986-1010) is attributable the rebirth of the Cathedral of St. Maria and Stefano (1006-1009), and to the Bishop Adalberto (1014-1023) the building of the new church, the San Donato Temple.

Regarding the work carried on by Elemperto the two most reasonable assumptions lead us to believe that the cathedral was rebuilt ex novo or, that it had been expanded with the addition of the side naves, the rich mosaic floor in black and white tiles (Fig.6) and the crypt at the central nave, as confirmed by the archaeologist Melucco Vaccaro<sup>11</sup>. The cathedral renewed by Elemperto and dedicated in 1009 was a small church, not larger than the Pieve di Sant'Eugenia in Bagnoro - Arezzo. We will see that this existing church has constituted an important reference point to carry on the reconstruction hypothesis for this ancient cathedral. In 1203 the cathedral was moved inside the city walls. On September the 4th 1561 Cosimo I de Medici communicates its decision to demolish the old cathedral, although aware of its historical and cultural value. After about a year from the demolishment, the Ancient Cathedral of Arezzo was razed to the ground, we know this because on the August of 1562 the finest and the most precious materials were transferred to Florence where they were used to adorn and decorate the Medici Chapels<sup>12</sup>.

The displeasure of Arezzo for its old millennium of Christianity destroyed, led them to ask the bishop to build a chapel. In 1610 began the construction of the Oratory of St. Stefano, a small church, built reusing materials recovered from the ruins, that now stands parallel to the foundations of the ancient cathedral.

The Hill of Pionta after more than 15 centuries of Church property, changed owner during the building of the railway line Milan-Rome close to the archaeological area. In 1866, the Italian State left to the canons only the Oratory of St. Stefano and the rest became private property until 1909, when it passed to the Province. In 1904 it was built on the hill the provincial mental hospital and in 1914 the agricultural area of the Canons was enlarged to become the agricultural section of the same asylum<sup>13</sup>. On that occasion, the excavations brought to light several archaeological finds. This event was only the first of several alterations that the Hill of Pionta had to suffer during the '900.

### **The excavations on the "Hill of Pionta"**

At the beginning of the 1900 with the building of the railway and of the mental hospital and with limited excavation trials, many different archaeological remains were brought to light, however they were never studied in correlation with each other.

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<sup>11</sup> Tafi Angelo, Pionta, il Vaticano Aretino, pp.86-87-88

<sup>12</sup> Ibidem, p. 164

<sup>13</sup> Tafi Angelo, Pionta, il Vaticano Aretino, p.165

During the second half of the XX century on the Hill of Pionta two excavation campaigns were carried out: the first one in 1960-1965 and the second one in 1970-1974.

### **The excavation campaign in 1960**

Excavations of 1960-65 were called "casual". The result was useful to bear witness to the importance of the area of Pionta for the early Christian period. These excavations brought to light the fundamental parts of the early medieval cathedral of St. Stefano and St. Maria, the underlying cemetery area and the magnificent mosaic floor (Fig.1), even if the aim was to find those of the Temple of San Donato. Unfortunately these excavations were conducted in a wrong way, using unsuitable equipment, without any scientific rigor.

### **The excavation campaign in 1970**

Finally in 1970 the Archaeological Superintendence of Tuscany entrusts the direction of the excavations in Pionta to Dr. Alessandra Melucco Vaccaro, and 1970-1974 were held excavations with scientific method, but unfortunately limited only to the area previously explored, as in meanwhile, the surrounding area was destined to public green, submitting the archaeological remains to further alterations. Even with this limit to the study, the excavations of the 70s clarify some important points regarding the ancient cathedral (Fig.2).

The studies of the archaeologists distinguish three levels: the upper, the intermediate and the lower.

The upper level contains the remains of the cathedral church with three naves and three apses (of which an apse completely missing), that is the Cathedral of St. Stefano and St. Maria built between 650 and 840. The crypt dates back maybe to 1006-1009. The rich mosaic floor might be date to the next century<sup>14</sup>.

The intermediate level, being under the church, houses an ancient burial ground, hosting more than 120 tombs of different types, that was definitely in use since the sixth century. The lower level, lying just beneath the cemetery, houses the remains of an older building that was later incorporated into the new structure. This deeper building has a rectangular plan divided by a partition wall made by large stone blocks of reuse (sandstone, travertine, marble). This dividing wall was subsequently used to form the foundation of the right wall of the nave and the structures of the rectory<sup>15</sup>.

### **Archaeological investigations of the 2000s on the area**

In 2001 have been made further archaeological investigations to expand and develop their previous studies focusing on the area 1000 and its stratifications. The method used to carry out the research is the "stratigraphic method": layers are removed in reverse respect their laydown, and namely from the most recent to the oldest. This study took a different reading than the previous, leading to a different interpretation of the

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<sup>14</sup> Melucco Vaccaro Alessandra, Arezzo. Il Colle del Pionta. Il contributo archeologico alla storia del primitivo gruppo cattedrale, p.51

<sup>15</sup> Ibidem, p. 47

cathedral construction. This research team, led by doctors Serena Amerighi and Alessandra Molinari, has identified a total of five phases of use of the area<sup>16</sup>.

#### *Phase I (V-VI century)*

This first phase will be the construction of a rectangular building of which remains the South and East walls. Inside the building they were arranged burials and, since no burial was cut from the walls of the building, it seems born with the function of organizing the new necropolis.

#### *Phase II (VI-VII century)*

At this stage we have a continuity of use of the previous building, in which you can record an elevation in the perimeter wall. Burials continued both outside and inside.

#### *Phase III (VII-VIII century)*

In this phase there may have been a transformation of the structures. The existing building was used in part for the construction of a church with three-apse and one nave. The church continued to be used as a burial ground with different types of tombs. By the discovery of fragments of liturgical furniture it can be traced the presence of a church between the VII<sup>th</sup>-IX<sup>th</sup> centuries. Sources give secure suburban location of the cathedral from the year 800, so if the church in question is the only early medieval history traceable on the Hill of Pionta, it is the ancient cathedral of Arezzo.

#### *Phase IV (XI century)*

For this phase it is recognizable, a three apses church, with three naves extended until the front, with the central one larger than the lateral ones. The aisles were divided by columns resting on rectangular bases. The floor was paved in black and white mosaics. It can also be placed into this period the construction of a crypt with an earthenware floor, whose construction caused a significant rise of the floor of the nave and a lowering of the exterior ground level around the apse.

#### *Phase V (from XI century)*

In this phase was renewed the floor of the crypt with bricks placed of flat and in a herringbone and was build a series of walls that support the structures identified as belonging to the hypothetical boundary wall.

### **Comparison between the archaeological studies**

After the description of the two main archaeological campaigns, some comparison and final considerations are useful to lead this study to the reconstruction phase.

The oldest building would not seem to have had a function independent of the cemetery but would be created as a function of this.

Regarding the medieval church the main differences of interpretation concerning the layout. The reconstruction indicates a church with a T-shape plan in which you cannot identify the facade wall.

Finally, in the eleventh century, the cathedral was rebuilt from the ground up with three apses and naves.

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<sup>16</sup> Molinari Alessandra, Tristano Caterina, Arezzo: il Pionta. Fonti e materiali dall'età classica all'età moderna, pp.126-127-128

## **New documentation and studies in 2014-2015**

During the first half of 2014 for a year, the University of Florence supported by the Cultural Association of Accademia "Roberta Pellegrini" started a digital survey campaign aimed to read the architectural traces, and understand the original projects to form a strong basis for hypothesizing a reconstruction of the ancient cathedral of Arezzo on the Hill of Pionta (Fig.3).

### **A digital survey of the area: methodologies and results**

#### *The aerial photography by drone*

It was made by the use of an UAV, an Aeromax model equipped with a Canon PowerShot S100 12.1Mp compact digital camera (offering RAW shooting and GPS function). The pictures were taken from a single height with the camera parallel to the ground and with only a few shots taken from a tilted position. The pictures were later used to create a first textured 3D model of the area. This was done using photogrammetry, in the specific case with Agisoft Photoscan. This solution produced a practical model capable of giving a first visualization of the site, with all the main elements visible and readable, even if the quite simple mesh resulting from the photogrammetric process were not satisfactory.

#### *The topographic survey*

The topographic survey was taken by a total station and two reflecting stations. It starts deciding the station points and the collimated points, in a way to obtain a closed polygon, which would serve as a reference for relocating the data exiting from the laser scanner. The total station, equipped with a measurement device for distance and angles send the wave to the reflecting station; this is made with a prism capable to send back to the station the signal and so giving the measure. The site has got generous vegetation and at the same time it presents various empty space with no relevant structures, moreover the excavated areas are at a certain distance one from the other and so the topographical network worked well in connecting all the scans together and allowing a lower density of the scans for the terrain connecting the different parts and applying a high level of details only for the excavated areas.

#### *The 3D laser scanner survey*

The 3D Laser scanner survey was planned in the form of an integrated survey, combining 3D LS to a topographic survey. The 3D laser scanner used was a phase-shift type, a Zoller+Fröhlich Imager 5006h. The working range of this instrument ranges from 0,4 to 79 metres, in this survey the most usable data was ranging from 1 to 50 metres. The positioning of the scan stations was decided according to the shape and to the specific conditions of the terrain and of the remains. The surveys were completed taking 112 stations, all of them operated in full panoramic mode, and exploiting the characteristics of the 3D laser scanner in use, which was capable of scanning 360° on the vertical axis and 310° on the horizontal axis.

#### *Digital survey of pieces and details: photography and photogrammetry*

The last part of the survey consist in a photographic campaign of a various set of iconographic examples around Arezzo, that testify, in their own way, the original aspect of the citadel. Some of them are very interesting and so it was decided that photogrammetric surveys of each of them were to be taken. The first was the sign engraved on the main door architrave of "St. Maria of the Old Dome" Church in the Arezzo downtown, probably realized immediately after the destruction of the citadel. The second was a baked clay



plate from and altar, now located in the Diocesan Sacred Art Museum in Arezzo. For both these items the photogrammetry was based on the use of Agisoft Photoscan, with the use of a measurement taken in place to put the final model in scale. The use of 3D models to study such elements is very interesting, because it allows the detailed reading of the shape of the elements and it makes it possible to take a look from different and specific perspectives.

### **The remains of the Church of St. Maria and St. Stefano: a hypothetical reconstruction**

The process of reconstruction of the Cathedral is an important step to carry on the studies on this area; it is a way to give a shape to the bishop's citadel, to understand the religious architecture that from the VII<sup>th</sup> century until the XV<sup>th</sup> characterized the Hill.

The foundations of the ancient cathedral, discovered during the search of the remains of the Temple of San Donato, constituted now a symbol of the area and a hope to find out the organization of the citadel on Pionta.

### **Redrawing the ruins: dimensioning, geometry and similar churches**

The reconstruction of the plant in the right scale (Fig.4) has been necessary to compare the foundations of the cathedral with the measurement units used in the period. After some test it has been determined that the unit used was the ancient "Florentine arm"<sup>17</sup> which is equivalent to 0,58 mt (Fig.5).

This data allowed the construction of a grid overlaid on the plan of the excavations for a first sizing of the structure of the foundation. After this it started the comparison with the literature and with the churches and country churches similar in size and characteristics to our cathedral.

The correspondence with the sizing done by Dr. Melucco Vaccaro of early medieval cathedral overlaid to our preliminary studies allowed to identify common points in the entire structure and it was the start for the first real reconstruction of the plant.

The identification of the mosaics (Fig.6) from the map drawn after the excavations of the 60s and 70s drove us to their reconstruction according to some schemes, and to make an educated guess about the length of the naves. It was also useful for a comparison with the new reconstruction.

The nave and aisles were covered by part of a unique mosaic floor in black and white tiles, with themes like floral, geometric and animal. The redrawing of the mosaics was necessary for the subsequent reconstruction of the plan: it was useful take a starting point from the images placed in the Church of St. Stefano and the bibliography. Aft this every element of the mosaics was vectored to hypothesize their position in the naves and their repetition.

Among the churches evaluate in being similar to the remains, three examples were chosen to be a reference for the reconstruction of the cathedral, for architectural and structural features in common.

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<sup>17</sup> The Florentine Arm, from the Italian "Braccio Fiorentino" is an ancient linear measurement unit used in the Province of Florence during the Late Medieval Age. To avoid frauds, the official length of the arm was carved in stone, in Cerchi Street, in the city centre, where it is still visible.



### *Church of Sant' Eugenia in Bagnoro - Arezzo (Fig.8)*

Its structure and dimensions are compatible with those of St. Stefano and St. Maria Cathedral. The structure with three apses scanning arches in the nave, the roof trusses and stone walls make it an important reference and also mentioned in the bibliography. Been heard only in 1065 but it was probably built around the century VII-IX. It is built upon the foundations of an older building.

### *Abbey of Saint Veriano - Arezzo (Fig.9)*

The church is no news since 1095. It consists of a single room even if in the apse shows three apses. Interesting are the remains of the bell tower collapsed outside. The real peculiarity is the crypt from which you access through two stairs at the side of the room. The area of the crypt has vaulted ceilings and raised presbytery, to this it can be taken as an important reference.

### *Church of San Salvatore in Agna - Montale (Fig.10)*

Similar to the Abbey of San Veriano but architecturally richer, this church has a crypt built in X-XI century, with cross vaults with nine columns. To the chancel floor you go up by a central staircase, the stairs leading to the crypt beneath the lateral size compatible with that of the cathedral on the Hill of Pionta.

## **2D and 3D reconstruction**

After the preliminary studies and the comparison with similar existing churches, the 2D reconstruction of the cathedral had begun.

The first point addressed was the return of foundations thanks to the plant of the survey resulting from the pointcloud and the overlapping with the grid in "Florentine arms". The positioning of the nine columns of the crypt is known to the presence of their bases in the excavation site, just as it is known the size of the room, of 8,5x7,5mt. Ladders to enter the crypt were positioned at the sides, the cross cover is assumed in stone as the Abbey of San Veriano, the floor is in bricks posed at herringbone and is located at an height of -1.6mt compared the floor of the nave (Fig.11).

In the crypt room there is also a raised altar for the celebration visible from the excavations. The plant consists of three naves with three apses is interspersed in the nave by two rows of four columns.

In the presbytery we see vertical reinforcement bases arches throughout the structure. The presbytery is raised above the floor of the nave of 1,40m, to make usable the crypt below. In the nave and aisles and at the presbytery is the rich mosaic floor. Probably the main aisle, in its central part, was characterized by a particular mosaic floor. This is inferable for the presence in other basilicas (for example in San Miniato - Florence) and other cases study, but we do not have elements to determine it for sure.

Outside of the nave and for the same width, on the front side can be seen the foundations of a rectangular porch deep 3,50 m with terminal pillars.

For the bell tower we can only guess its location near the apse left, in that the excavations have unearthed some compatible foundations, but many scholars agree that in that area were also present the fortification walls of the Hill of Pionta.

After that the plants for the 3D reconstruction have been completed, was necessary to elevate the structure building sections: a longitudinal one and a crossing one (Fig.12).

The impossibility to going back to the heights of the external and internal structure of the cathedral, made it necessary to take as a reference those of the Church of Sant'Eugenia in Bagnoro, described previously, of which the team have the plants and raised rebuilt during the restoration and consolidation works in the years 70/80. After a comparison between the two plants and wall thickness, it has been possible to drive the sections in which the main material is the stone for the walls and wooden truss structure for the covering. The only raised area is the presbytery, where you go up with the central staircase, while the side steps leading to the crypt below.

The outside porch is covered by a pitched roof supported by external pillars of stone and wooden beams.

The 3D reconstruction has been made starting from the plan and the elevations drawn thanks to the comparison with similar structure.

In the principal front, the mullioned window was modelled following the design of the facade of the cathedral of St. Stefano and St. Maria represented in the fresco of Spinello Aretino called "Resurrection of a monk" located in the sacristy of the church of San Miniato al Monte in Florence (Fig.7). In 1387 when the fresco was realized it is assumed that the cathedral of Arezzo was well preserved.

Once the modelling of the entire cathedral was finished, some render were calculated allowing a total view of the 3D reconstruction, both of the exterior and of the interior (Figs.13-14).

The model so conceived can be used for the creation of the 3D model in a different scale, to be exposed and visible to the public in a museum or in a showcase near to the remains.

## Conclusions

The process of re-discovery of this ancient and important part of Arezzo, with the collaboration between the Association of Accademia and the University of Florence started and proceeds with the final aim of disseminate knowledge and culture.

The possibility to see a 3D model of the ancient Cathedral of St. Maria and St. Stefano, compare it with the archaeological remains and the other existing examples of religious buildings of the same type, gives to many people the pleasure of understanding how was the original organization of the ancient Hill of Pionta: the medieval centre of Christianity in Arezzo, at least over a period of its existence.

Until now, many things about this place are yet to discover, but is important to communicate what scholars have discovered on it in an easier way than a description or a plan: 2D drawings and 3D models are certainly the most interesting and captivating way to disseminate.

Moreover the possibility to share on the web the 3D models in suitable portals can involve other scholars and scientist in the question and maybe could encourage comparisons or in-depth studies on the matter, making comments on the actual state of reconstruction that could be useful to improve or modify the models, in a way more faithful to reality.

With our work we want to bring to the story little known and disclosed of the historic Hill of Pionta, to both citizens of Arezzo, workers in cultural heritage and tourists. Succeeding would mean re-evaluate this place, where for more than a century, with archaeological excavations, people has been searching for the "Old Cathedral" of Arezzo.

We are hoping that our studies could do the great honour that belongs to the Hill of Pionta after the demolition by Cosimo I de Medici with the intention to remove this ancient citadel from the earth and from memory of men.

## Acknowledgements

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## Pictures



Fig. 1 – Photos of the excavation campaign of the 60s (Copyright: Donati P.P.)

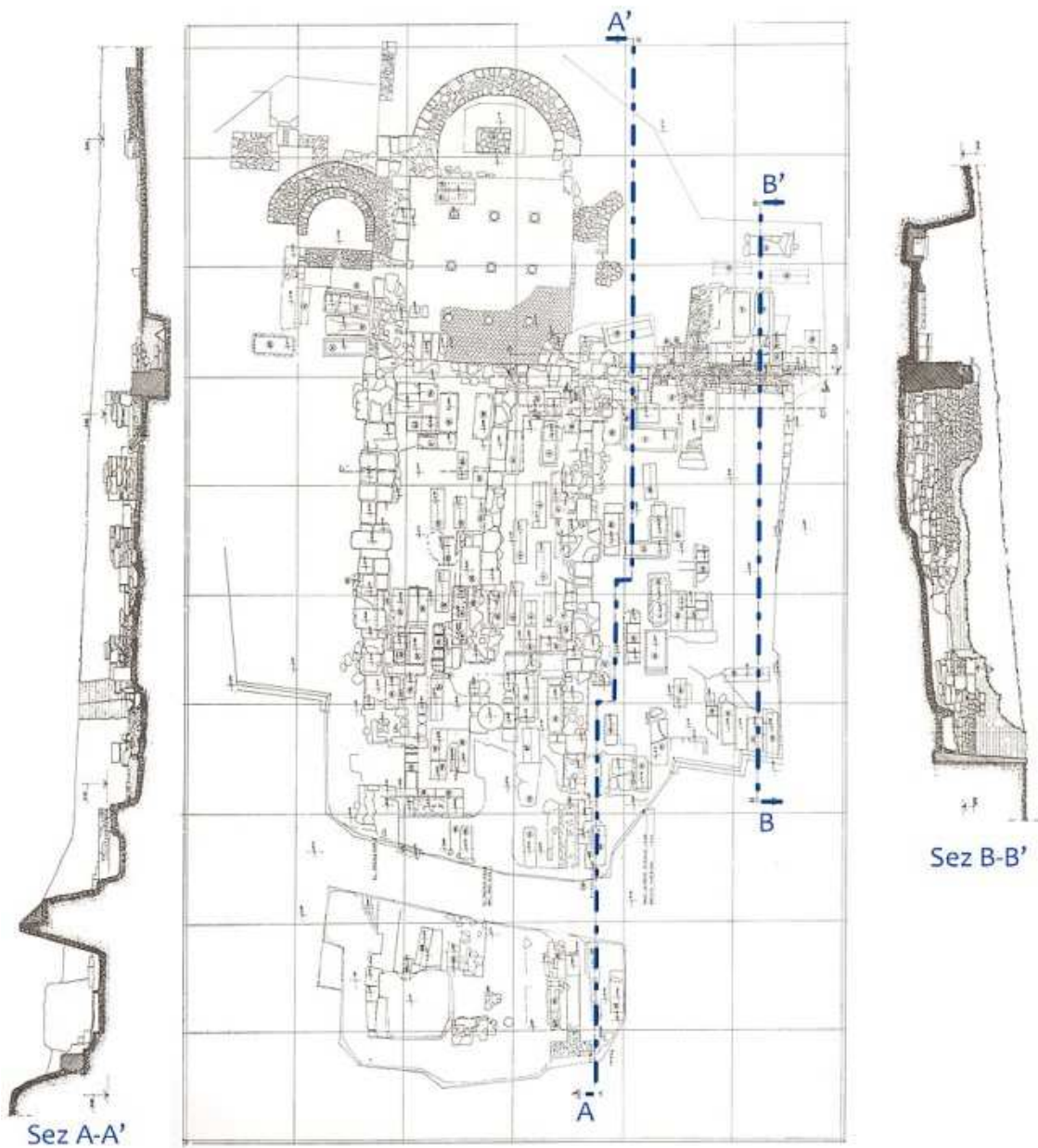


Fig. 2 – Planimetry elaborated during the excavation of the 70s (Copyright: Alessandra Melucco Vaccaro)



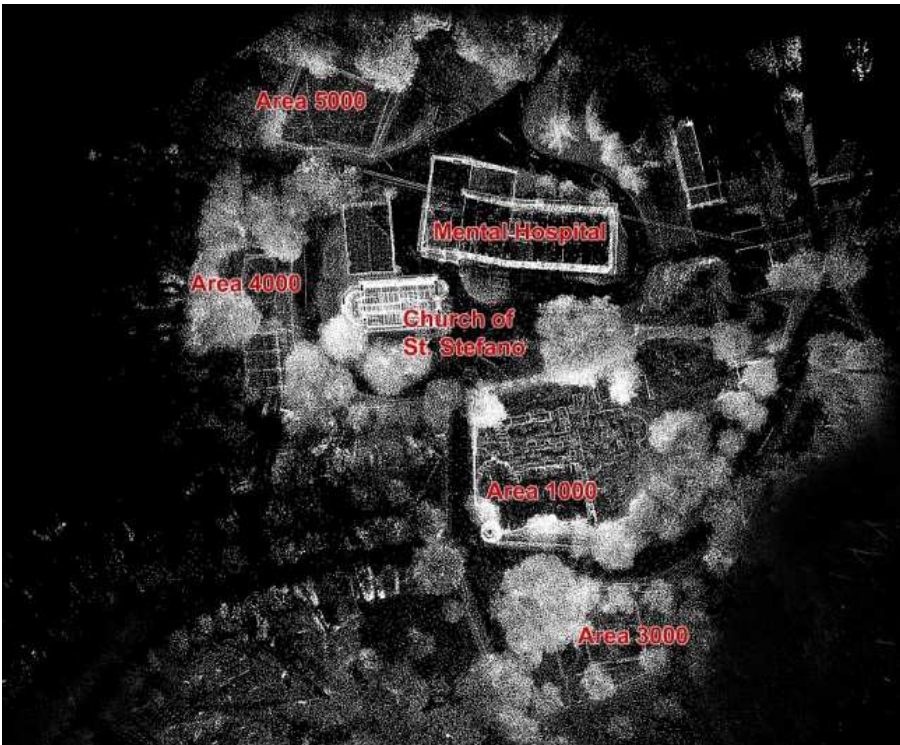


Fig. 3 – Snapshot of the pointcloud of the digital survey of the Hill of Pionta made in May 2014 (Copyright: Angela Mancuso)



Fig. 4 – Area 1000, Church of St. Maria and St. Stefano - State of excavation in 2014 (Copyright: Iacopo Giannini)

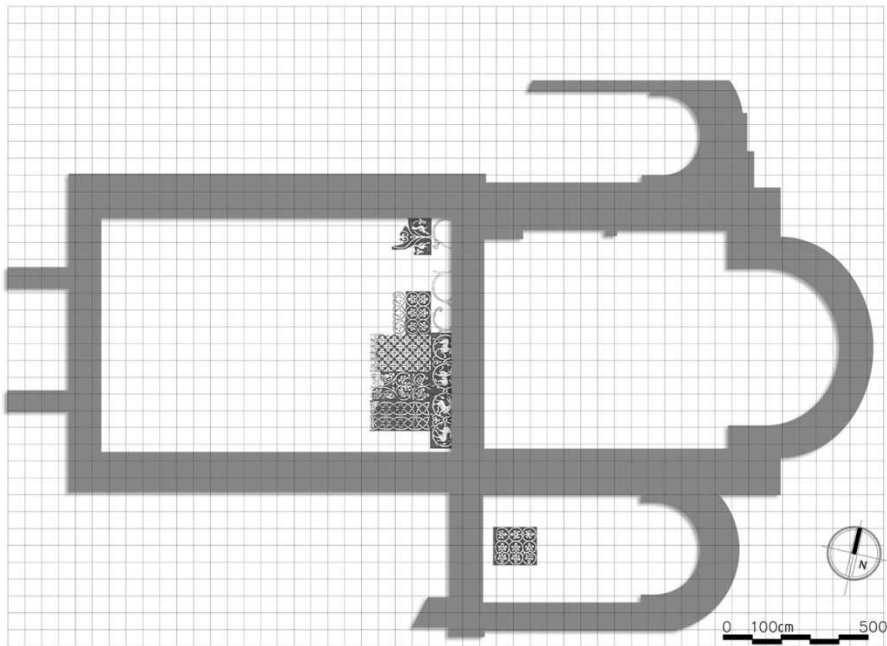


Fig. 5 – Area 1000, Church of St. Maria and St. Stefano - Plan with floor mosaics overlapped with a grid in "Florentine Arms" (Copyright: Giulia Chiti, Iacopo Giannini)



Fig. 6 – The floor mosaics now exposed inside the Church of St. Stefano (Copyright: Giorgio Verdiani).





Fig. 7 – Fresco realized by Spinello Aretino in 1387 inside the sacresty of the Church of St. Miniato al Monte in Florence. At the time the Cathedral of St. Maria and St. Stefano was still present and well preserved. In the fresco is represented the principal facade with the mullioned window (Copyright: Spinello Aretino)



Fig. 8 – Church of St. Eugenia in Bagnoro, Arezzo (VII - IX century) - One of the architectural model used to rebuild the Ancient Dome of Arezzo (Copyright: Iacopo Giannini)





Fig. 9 – Church of St. Veriano in Veriano, Arezzo (1095) - One of the architectural model used to rebuild the Ancient Dome of Arezzo (Copyright: Iacopo Giannini)



Fig. 10 – Church of St. Salvatore in Agna, Montale (X - XI century) - One of the architectural model used to rebuild the Ancient Dome of Arezzo (Copyright: Comune di Montale, [www.wikipedia.it](http://www.wikipedia.it))

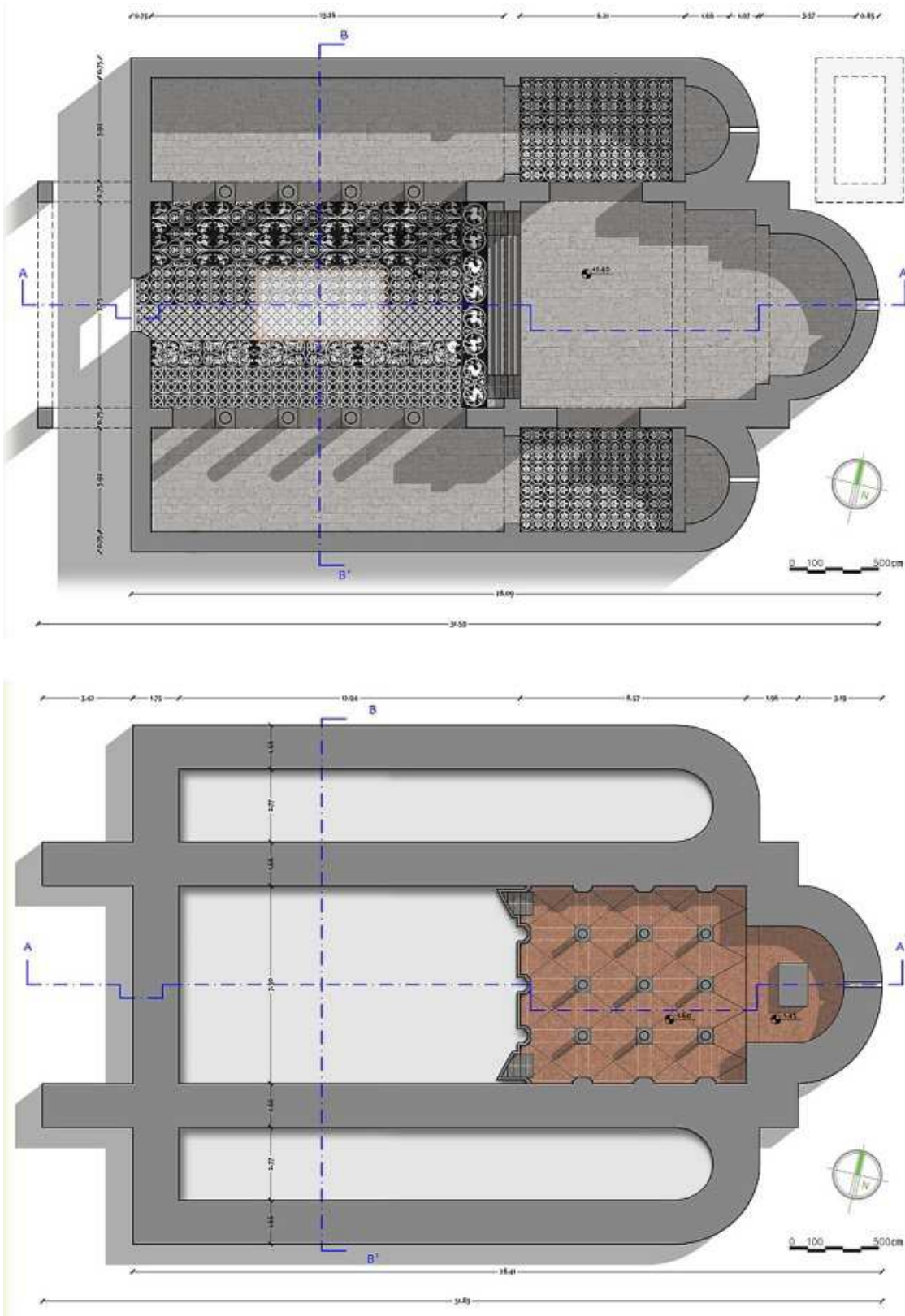
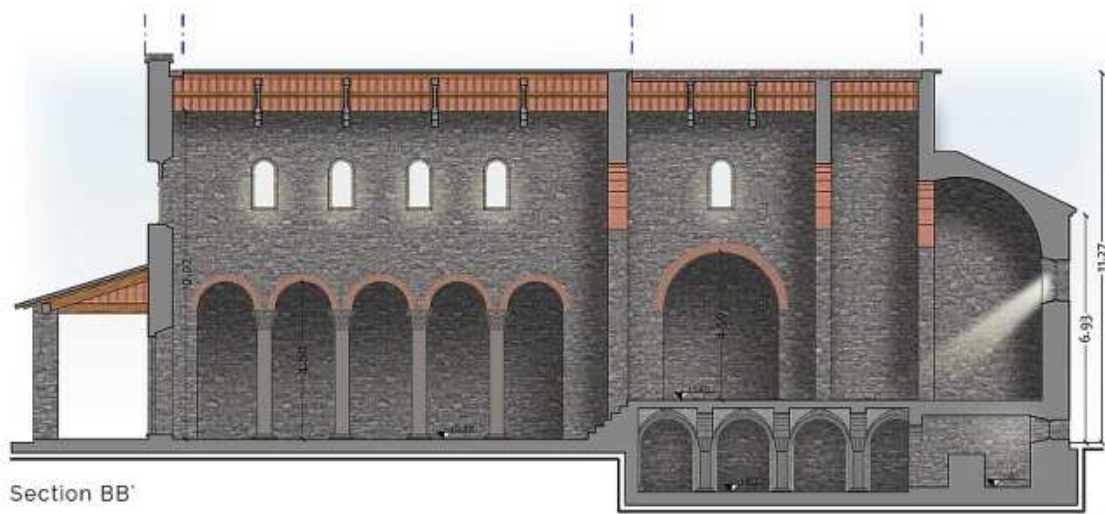
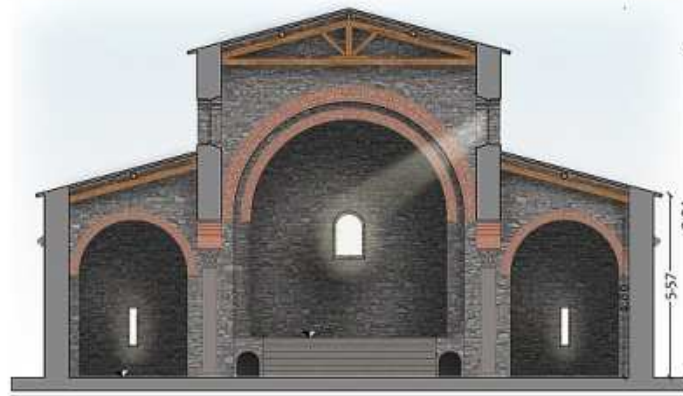


Fig. 11 – Hypothetical Reconstruction. Planimetry of the nave level with the relocation of the floor mosaics and the presbiterial area elevated on the nave. Planimetry of the crypt level (Copyright: Iacopo Giannini)



Section BB'



Section AA'

Fig. 12 – Hypothetical Reconstruction: sections (Copyright: Iacopo Giannini)



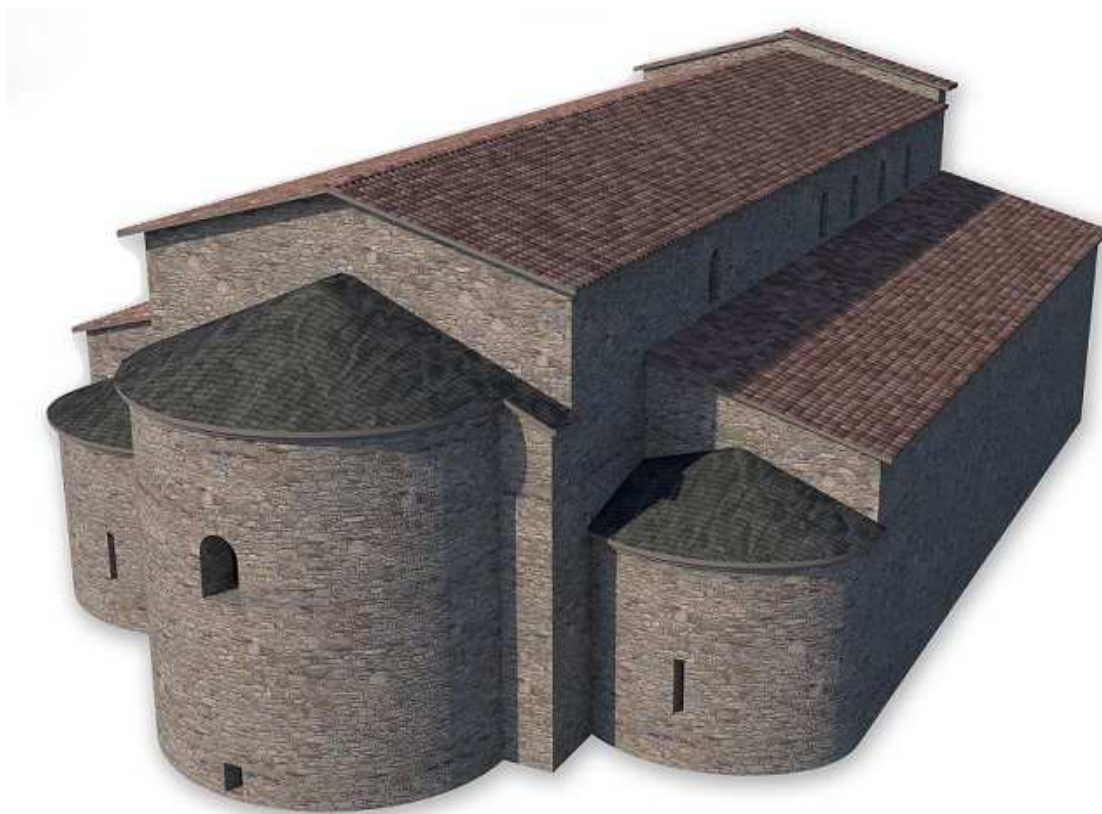


Fig. 13 – Hypothetical Reconstruction: exterior perspective (Copyright: Iacopo Giannini)



Fig. 14 – Hypothetical Reconstruction: interior perspectives (Copyright: Iacopo Giannini)

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