A RESTORATION AND CONSERVATION PROJECT OF THE "SAINT DOMINIC" MONASTERY IN SORIANO CALABRO, ITALY

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1. Historical background

The "Saint Dominic" Monastery in Soriano Calabro (Calabria, Italy) consecrated to Saint Dominic de Guzman (1170-1221) was one of the most important monastery of the Dominican Order in Europe[1]. It is a typical Baroque example in Calabria region. Historical sources inform us that in its well-stocked library[2], equipped with numerous manuscripts and publications[3], several friars and scholars completed their studies. According to recent studies, the building of St. Dominic Monastery dates back to 1510, which was the year of the Bull of Foundation (pointed out by P. Francesco Russo in the *Regesto Vaticano for the Calabria*), addressed to the Bishop of Mileto, the Roman Cardinal "Andrea della Valle" (1463-1534)[4] by Pope Julius II (1443-1513).

In Calabria the first presence of the Dominican Order can be recorded in Cosenza (years 1241-1268), while the first real settlement can be recorded in Catanzaro at the beginning of the fifteenth century. Subsequently, the number of new Monasteries increased progressively reaching its greatest expansion in the XVI century[5], initially privileging the Episcopal seats and later spreading to important towns. The Soriano Calabro village was probably chosen because it rose located along an important street, used by merchants which connected the Pizzo and Rosarno ports to the adjacent mountain area named Serre[6]. The modality of the "Saint Dominic" Monastery installation in Soriano Calabro was an excellent answer to different religious, economic and political needs[7]. Indeed, the "Saint Dominic" Monastery was built outside Soriano but close to a new expanding area; the following demographic development of Soriano was the main reason for its division in two parts: "Soriano Inferiore", located in the lower part, and "Soriano Superiore" located in the higher part[8]. In 1650 AD, the Spanish government charged engineer Antonio Tango to execute the "Apprezzo" of the State of Soriano; the fig. 1

Figure 1. Planimetry details from Antonio Tango's Apprezzo (year 1650).

reports the town-planning situation within its context[9].

The image reports Soriano and its walls[10] and the suburb which consisted of four quarters (each one with a church); the most important was the one with the Square in which the palace of the Count and the parish Church of Saint Martin[11] were located.

Thanks to numerous donations from the pilgrims who came to worship the miraculous image[12], the Dominicans accumulated a large quantity of money. In 1652 the feud was sold to the friars for 84,000 ducats and the prior became Soriano's Count too, mainly because King Philip IV (1605-1665) had a particular veneration for the St. Dominic portrait[13] but also to solve economic problems.

The St. Dominic Monastery remained undam-

Figure 2. St. Dominic Monastery before the 1783 earthquake, engraving by F. Miotte.

aged during the 1638 earthquake but broke down almost completely in 1659 earthquake. Thanks to Philip IV, the rebuilding of the monastery started in larger shapes designed by architect Bonaventura Presti[14] (fig. 2).

2. Architectonic frame

The "Saint Dominic" Monastery was very different from the adjacent built up area for its impressive dimension; in particular for the big dome and for the enormous bell tower of the Church (fig. 2). Both had a peculiar function: the first one became a symbol for the pilgrims, the second one was connected to the Count's title, held by the Prior since year 1652. Therefore, the bell tower played an important role in turning the Monastery into both a religious and a political centre; indeed, the tolls of the bells marked the friars daytime and the events of the citizens' daily life.

The Saint Dominic Monastery, built on two principal levels, adapt itself to the hillside sloping toward a river. Moreover being located at the edge of the village it had no restrictions in its definition.

The Saint Dominic Monastery unitary project was formulated according to the typical Baroque plants. The plant itself was probably connected to a specific religious or a philosophical theory[15]; the symbolic values played important roles in the definition of the spaces. Two orthogonal axes can be found: the first one in the east-west direction, and parallel to the longitudinal direction of the Church, emphasized by the vertical tower at the entrance, while the bell tower emphasized the second axis showing the entrance to the cloisters of the square. The matrix of the four directions related to the main four cardinal points, can be assigned to a popular model of settlement in which the Christian cross is a symbol of the religious authority (fig. 3).

The cloisters played a crucial role in the monumental plant: every single cloister was about 4.500 m^2. It is possible to trace a module that has been used to part the cloisters, the "Saint Domenic" Monastery, the square and the system of the orthogonal roads (fig. 4).

The Preaching Friars were interested in the urban development creating the large square which permitted to a greatest number of believers

Figure 3. The symbol of the sun in the white marble statue representing St. Thomas Aquinas (1225-1274).

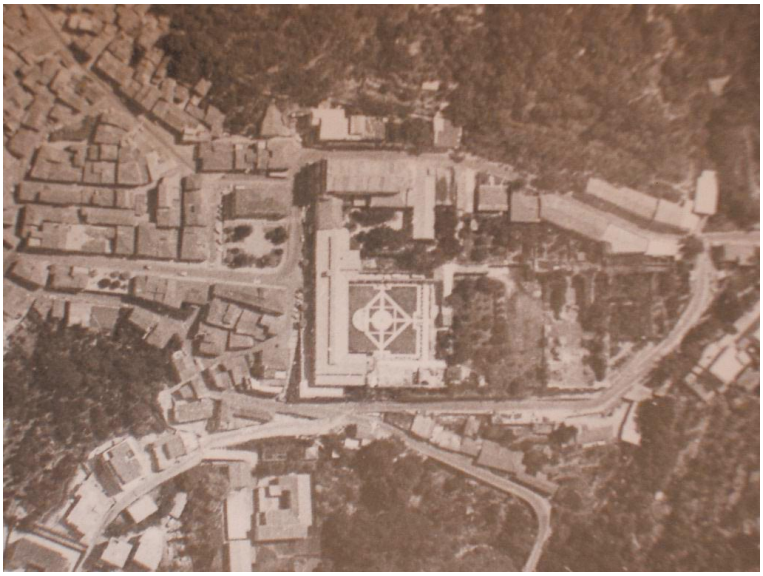

Figure 4. The area of the Saint Dominic Monastery, of the square and of the block next them.

to listen to their sermons. It represents the centre of the ideal town delineated by the Catalan Franciscan Eximenic at the end of the 14th century[16]. In spite of the large square looked out the two principal cloisters, the more important front is the one showing the facade of the church, the tower of the prison and the shops. The road along the shops demonstrates the particular relationship connecting preaching-friars and merchants, in fact it reproduces the modern commercial town roads with the shops on the side and it shows the connection between "*pulchritudo civitatis*" and merchants. The beauty of the architectonic front of the shops, was fundamental to attract foreign people. The map of the front of the shops was realized with regular forms and by employing local building material. The facade of the baroque portal with the ahead columns had a dynamic vision and scenographic intent. The wall is inclined enough to bring the eye of the observer towards the entrance of the church that is higher than the road level. However, the road of the shops was not supposed to structure the inhabited place, rather the way of the pilgrims, coming from valley bottom, towards the church of the patriarch[17]. The connection between the rules of the Mendicant Order and the aesthetic values and the combination between the beauty of the architectonic space and the vision of the landscape are evident[18].

The relation of the "Saint Domenic" Monastery with the inhabited place of Soriano Calabro is connected to one of the peculiar characteristics of this small town: the realization of the trapezoidal shape of Roma street, started between the second half of the XVII and the end of the XVIII century, which had the intention to give particular points of view. The street confirms the practice, in the Baroque epoch, to insert a trapezoidal space in the town in order to use a monumental background. The architectonic wing, formed by the northern facade of the Monastery, is now used like a townhall[19]. In the street's trapezoidal shape, the collapse of the dome of the church and of the bell-tower modify the wing: the predominant role in the visualization of the way was get by the facade to the entry of the cloister. At the present the street keeps the visible approach of the monumental wing with the perspective arrangement that guides the observer's eyes toward the access door according to a binocular like scheme[20].

Another important consideration concerns the distance among the Orders. The St. Basilio's order was present with a monastery in the S. Maria's Angels hill overhanging Soriano, therefore the Dominican Order testifies the Christian catholic works in Soriano country to prevent the spreading of the Byzantine faith. Usually the Dominican, Franciscan and Augustinian Friars settled down in the same town with a triangular disposition according to accurate dinstances[21]. By examining a larger area of that territory we can stress that the Franciscan Order has founded a Monastery close to the Arena village (Bull of Pope Eugene IV, year 1436) and in 1546, the Augustinian Order a Monastery near to Acquaro village, both distant few miles from the Soriano village. As per the position and the distance of the place of installation and since the land of Soriano was divided in two hamlets, Cianciaruso da Seminara says «*... dovendosi far il Convento, s'havea da edificare in mezzo ad ambedue, dove tutti potessimo partecipare dal comodo ch'esso arreca...*» (*… as a monastery had to be built, it was to rise between them, where all of us could share the advantage that it brough...*) and in confirmation of that yet picked out, continues «*... assegnata una chiesuola chiamata della Nunziata, essendo quel luogo sas-*

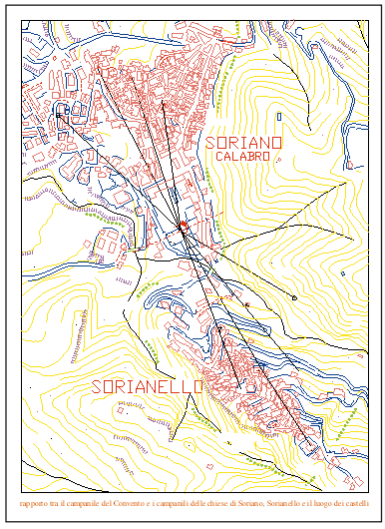

Figure 5. Connection of the bell tower with the churches of Soriano and Sorianello.

soso, dissegnarono, che si dovesse fabbricare più all'ingiù, per lo che, assegnato il terreno, vi posero la croce per segno, che n'era fatta concessione alla chiesa...» (*... allocated a small church named Nunziata, being that place rocky, designed, that it should be built downwards, for that, when the land was assigned, they put down the crux for sign that was made concession to the church…*).

At present most of the "Saint Domenic" Monastery, mainly as a consequence of the catastrophic earthquake of year 1783, seems a ruin. However, with the new look that it has acquired, it still preserves an extraordinary charm that continues to astonish. Noteworthy, the new St. Dominic Church, built in year 1839 on the ruins of a cloister. It shows the facade that turns over toward the higher square and the inhabited place of Soriano Calabro.

3. Preservation and restoration projects

The project was drawn up with the purpose to preserve and transmit to the future generations the "Saint Domenic" monument in its authenticity, in its formal and material consistence, with the marks of the passing of time (cultural, historical and aesthetic value testimony). The project followed the critical and conservative restoration with the defence of the artistic and figurative data that has been analysed through an accurate historical-critical work. It has been esteemed that the architectonic structure of the "Saint Domenic" Monastery, presents itself as an "open sky" building and it can be utilized like a museum in plainly, with a route of visit outside-inside, to promote the view of the village of Soriano Calabro and of the whole territory. According to Cesare Brandi (1906-1988), in the case of the ruin the dialectic between historical instance and aesthetic hangs only on the first, therefore a minimum restoration of the actual condition is proposed, even if the Monastery has acquired its functional aesthetic quality and validity. The project, in order to assure a long-lasting life, includes technical methods to preserve the Monastery about physical deterioration, but also its recovery for social and cultural aims. An important objective connected to the protection of the territory is reviving the importance of the watermills which were necessary for the development of the "Saint Dominic" Monastery.

3.1. The facade of the ancient "Saint Dominic" Church

Today the facade is so ruined that it is impossible to see the most of the decorations (fig. 6). The restoration of the facade with tiles in brickwork and with lead plates, made by architectonic Departments in year 1970, have been efficacious to remove the

Figure 6. Facade of the ancient St. Dominic Church (photo by ND, year 2007).

rain although they caused inevitable draining. Finding the reasons of deterioration is important to preserve the monument with an accurate procedure. The granite weathering in the facade is produced by a combined action of physical, chemical and biologic factors; the facade is subjected to changes of temperature between winter and summer time, it is subjected to the rain, to the wind, to the moisture. All these phenomena produce a structural weakening. Through the inspection of the crypt designed to the friar's burial, it is possible to observe how the lack of ventilation and the draining of the rain caused the humidity in the facade; for this reason it is expected to renew the floor, to carry out the right slopes for the draining and the canalization of the water, to build a system of ventilation in the basement. The stone presents a "natural" deteriorating helped by the lacking of preservation. Moreover, the presence of spontaneous vegetation such as musk and lichen emphasize the condition of general weakening. The peculiarity of the stone employed has been analysed. The today dressing can not avoid the penetration of water, but the lack of a preservation increased the weathering phenomena. The above-mentioned phenomenon can be slackened with the following treatments:

1) Application of a biocide spray and weed killer.

2) Cleaning and removal of products with nebulized water, manual extirpation of the roots grown in depth.
3) Strengthening of the deteriorated stone to improve the compactness and the mechanical peculiarity. According to the laboratory analyses and to the disgregation of the facade, the silicate of ethyl like RC70, applied with a brush until to saturation is suitable. In any case it is convenient to test the effect on the small surface.
4) Filling in the empty with parget, similar to one of the stone. Finally it is necessary to plug the granitic surfaces with a solvent, to avoid dust, and to apply a protective substance (which we can last from five to ten years).

Those treatments can delay the process of deterioration but it is necessary to plan a periodic maintenance made by specialized restorers. The choice between preservation and intervention was solved with an accurate analysis of the problems: there are not gen-

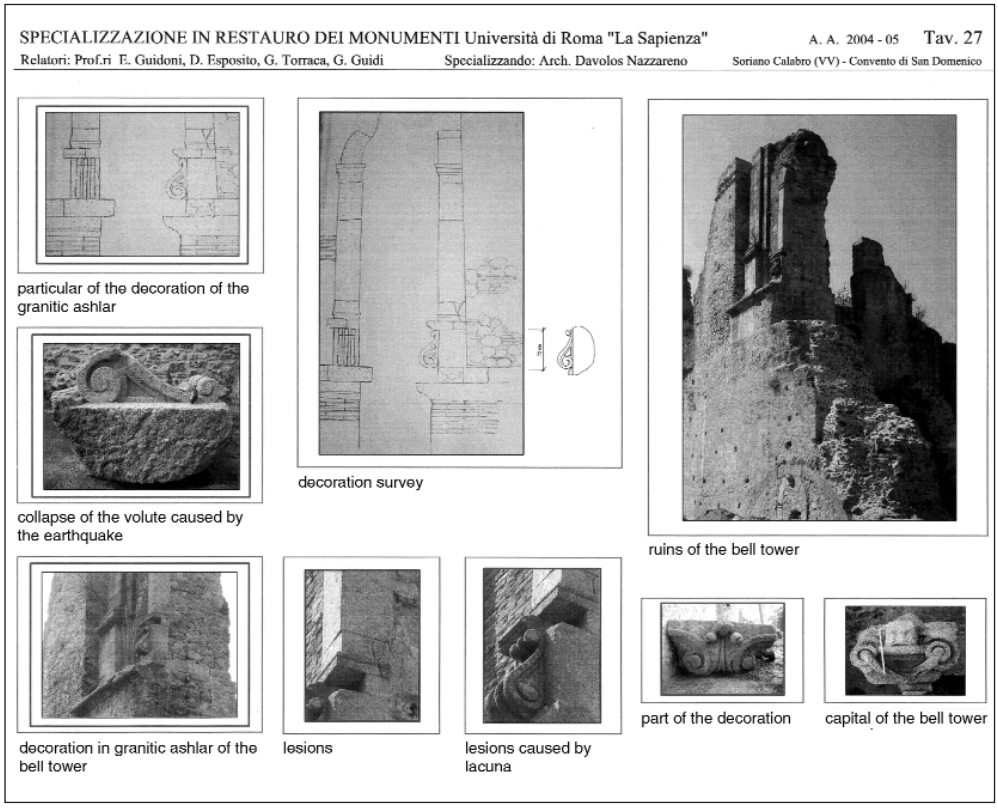

Figure 7. Drawing relating to the bell tower.

eral laws for the restoration. It's important don't leave the facade as a ruin: modest treatments neither invasive nor destructive, reversible and compatible with the pre-existent building are sufficient. The safeguard and the protection are proposed to avoid to operate with the re-integrations of the lacunae that weigh on the image (i.e. with the replacement of the granitic hewn stone deeply corroded).

3.2. The bell tower

The decoration of the bell tower ruins shows, on the base of the parastas, some lesions caused by several lacuna on the granitic ashlar (fig. 7), on which it is urgent to intervene by inserting an element for filling up the lack. However, this can arise some controversies: does it respect the original shape and does it change by using a different material? It is the Monument itself to suggest us an answer, but anyway any solution to reintegrate that lacuna must respect the attitude of the smallest intervention, recognizability, notoriety, reversibility and compatibility. Even if it is not an innovative work, this paper suggests the rebuilding of the shape with the use of different material but with similar mechanical and chemical-physical characteristics to assure an homogeneity of performance in the future.

It is well known that the restoration has to be primarily a preservation, but if necessary as in our case, it must reintegrate the lacunae without making a copy or a reinstatement. As Paul Philippot says: unreachable, is the "stato antico della materia antica" (ancient condition of the ancient matter), it is necessary to treat and preserve what came from the past and to eliminate the pathology.

3.3. The apse

As for the parastas of the apse, made with stucco method and restored in 1970 by Monuments department, it can be stated that the readings are fading, but being remained a sweep of the cap of the apse, by which the shape be can draw, in the project the rebuilding of the vault is proposed and has to be realized in copper of thin thickness and supported by a metallic light structure, that is supposed to carry away the rain in the gratings, giving back the original space and protecting at the same time the apse from the inclemency of the weather. Besides ceremonies are still held in the church (anyway the Holy Mass is celebrated only in particular occasions). There is no intention of rebuilding the original shape which is difficult to individualize with exactness. There is no intention of reforming the total shape of the apse, inserting the shape that can be drawn from ruin of the blind arcade, which should be realized using modern material but that not too

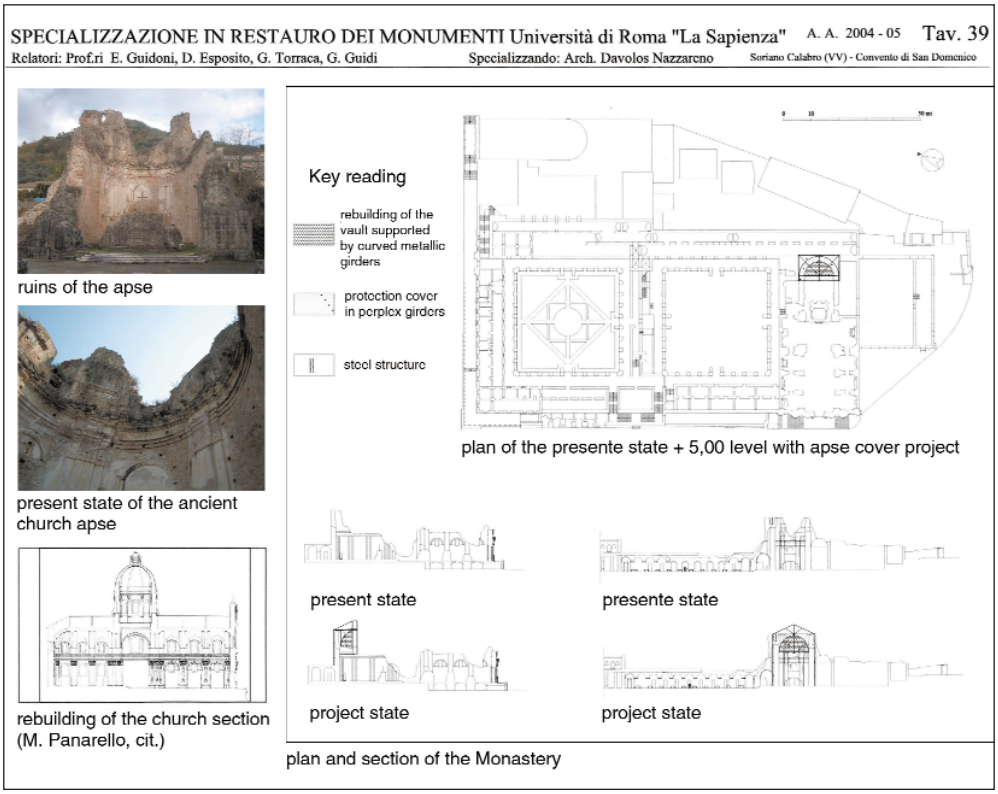

Figure 8. Drawing relating to the project on the apse.

detached from the monument. The insertion of the dome in copper, hanging with tie-beam by metallic girders, is a rather invasive proposal but it results efficacious because it permits to keep unchanged the vision from the internal of the apse. It represents a modern answer, but however adherent to the pre-existing, suggested by historical-critical reading in order to transmit integrally to the future, without crossing out the marks of the passing of time and permitting the reading of the Monastery of Soriano. The primary aims are to reintegrate the church in the social life of the community and to intervene in order to save it from a sure ruin.

4. Mineralogical and petrographic analysis

In order to support the historical analysis, detailed investigations were performed about the materials used for the construction of the facade of the ancient "Saint Domenic"

Church. This was essential to know the nature, the composition, the state of preservation and the kinds of degrade with the main aim of proposing appropriate intervention of restoration. The stone has been characterised by a mineralogical and petrographic analysis to have enough information to determine its geological history. For this purpose little fragments of stone were used, mainly by flaking collected directly from the Church facade. Following the sample preparation, the morphology of thin sections was obtained by an optic microscope (see below); moreover a X-ray diffraction spectrum has been obtained.

4.1. The petrographic observations

This is a destructive technique that specifies and completes the information obtained by the means of a stereoscopic microscope and gives the opportunity to make a careful study of the mineralogical composition of the observed material. The polarizer microscope is employed to study the light phenomena of interference and polarization which are characteristic in various minerals. The light is polarized by a filter (nicol), placed under the condenser, and, after crossing the material under examination it is collected by a second polarizer filter (analyser), situated under the ocular. The optic properties of the minerals have been studied both by using only the polariser (parallel nicols), in order to

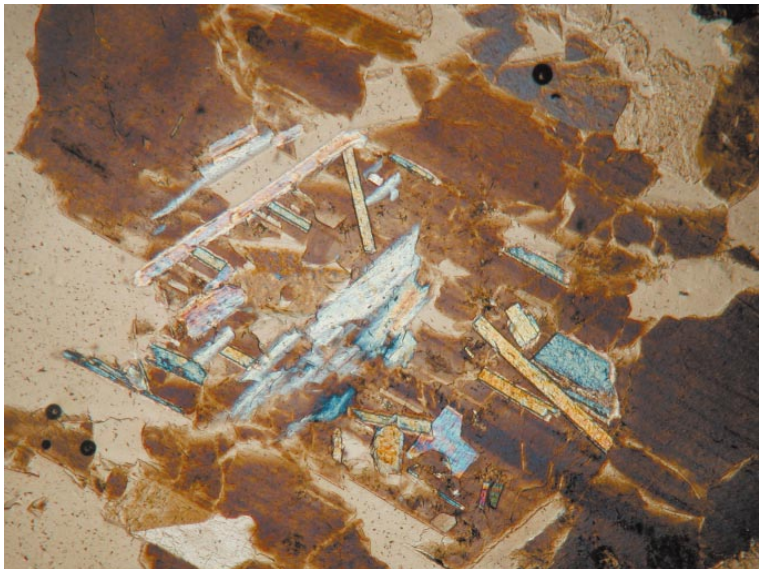

Figure 9. The thin section of the porphyritic syenogranite.

establish the index of refraction of the crystals and to make some observations on their shape, and by using polarizer and analyser (crossed nicols) in order to determine the nature of the various minerals which are present. The sample, which is representative of the petrographycal characteristics of the material in examination, has to be prepared in advance.

The thin section (fig. 9), which was observed by a petrographic microscope with polarized light Nikon Eclipse E 400 pol, gave the following result:

Kind of rock:	magmatic;
Filing:	porphyritic muscovite syenogranite;
Structure:	highly inequigranular holocrystalline hypidiomorphic;
Weave:	faintly oriented;
Minerals:	big crystal of poecilitic microcline, quartz, albitic plagioclase, biotite, muscovite, zircon.

4.2. The X-ray diffraction (XRD)

The X-ray diffraction (XRD), based on the irradiation of the sample through a monochromatic ray produced by an appropriate generator, allows the individualization and the recognition of the mineralogical ages which are present in the examined sample, in relation to the crystalline degree. It permits the qualitative and semi-quantitative determination of the components. The sample has been grinded and finely powdered to improve the statistics of computation, obtaining a good reproducibility of the results. The samples have been tested through diffractmetric examination by utilizing a generator of X-ray Ital Structures 3K5 having the following characteristics: cobalt tube AEG, multicanale portable analyser (4096 channels), curvilinear gas detector (mixture argon-ethane 15%), resolution 0,03 degrees, area of measure 10×2 mm, calibration 0,011 degrees/channel, and operating to 35 KV and 30 mA with a time of calculation of about 3600 seconds so as to permit a good statistic. The interpretation of the diffractmetric examination has been realised by using a modern computerized method that permits a sufficiently rapid comparison between the positions of the peaks which are present in each spectrum and those of the reference crystalline substances contained in a specific data base (JCPDS 1990). The analysis through X-ray diffraction, whose total spectrum is reported in the fig. 10, have noted the presence of plagioclasio (albite) [$NaAl\ Si_3O_8$], quartz (SiO_2), K-feldspato (microcline) [$KAlSi_3O_8$] and such principal minerals as miche (biotite) [$K(Mg,Fe,Ti)_3AlSi_3O_{10}(OH,F,Cl)_2$], and muscovite, [$KAl_2(Si_3Al)O_{10}(OH,F)_2$] in addition to zircone ($ZrSiO_4$) as incidental mineral, confirming what has been previously drawn by the petrographic observation[22].

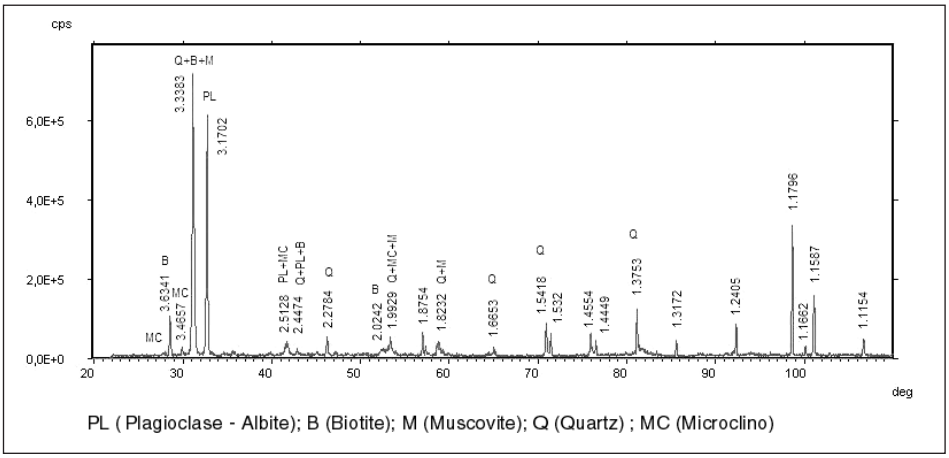

Figure 10. Spectrum of diffraction of the X-ray.

5. Conclusions

The experimental work was essential to specify the characteristics of the stone of the facade, its state of preservation in relation to the environmental conditions and to the conservative and maintenance interventions (the thermo-hygrometric range should be determined by sensors in order to acquire the values of dampness, the temperature of the air and of the superficies, the velocity of the wind, and the irradiance). The reasons of the degrade were individuated thus allowing the definition, even if in a preliminary way, of the best preservation and maintenance project for the ancient “Saint Domenic” Church. In a following step, it should be valued the efficacy of the technology and of the selected materials for the exterior treatment of the facade and the definition of the costs. The laboratory data and the diagnostic study of the state of preservation are effective preventive evaluations, the inquiry which has been carried out paves the way for the works of restoration of the facade, now necessary.

Finally, considering the frequent earthquakes and the recent seismic reclassification that has identified the territory of Soriano Calabro in zone 1 (subject to major risk), a consideration which comes from the today results of the collapse has to be made: the facade before the earthquake of year 1783 was “anchored” to the side-walls of the church and to the three aisles (indeed, the higher part of the facade collapsed) which collapsed during the earthquake, therefore in the eventuality of an earthquake the facade isn’t able to impede with her mass the horizontal strength. From a simulation of the behaviour of the structure, taking account of the physical-mechanical characteristics of the material, a

repair of consolidation is necessary, by previous check of the interaction of the facade with the land and with the support of various methodologies of inquiry.

Notes

[1] In the 17-18th century every Dominican church in Italy had an altar or a chapel in honour of St. Dominic in Soriano; reproductions of the painting of the saint are in Poland, in Spain, in Germany, in Holland, etc.

[2] The greatest part of the books of the library and papers of the archives of the Monastery were last dissipated after the vicissitudes following the disastrous earthquake of February 1783 and the institution of the Cassa Sacra, approved by King Ferdinando IV, in which all the property of the religious orders suppressed were joned; for the amount of the remaning books after the various abstractions we can find Barilaro A. 1982, *Fondo di cinquecentine presso la Biblioteca San Domenico in Soriano Calabro*, Oppido M., Barbaro; e Idem (to care of M.M. Fortuna) 1999, *Catalogo dei libri antichi (secoli XVII-metà XIX) della Biblioteca San Domenico in Soriano Calabro*, Soveria Mannelli, Rubettino.

[3] The Monastery possessed also a printing-works and a paper-mill moved by water. The ancientest source about the Monastery was printed in Soriano, Lembo A. 1665, *Cronica del Convento di San Domenico in Soriano dall'anno 1510 fin' al 1664*, Soriano, tip. Ferro.

[4] Panarello M. 2001, *La Santa Casa di San Domenico in Soriano Calabro*, Soveria Mannelli, Rubettino; the author was found in the Record Office of Naples six *Giornali di Fabbrica* relating to the period 1640-1700.

[5] Consult Barilaro A. 1989, *I Conventi Domenicani di Calabria*, Palermo, Tip. Arti grafiche siciliane; Longo C. 1998, *Conventi domenicani della provincia di Vibo Valentia*, in "I beni culturali del vibonese", Vibo Valentia, tip. Mapograf, pp. 141-188; Esposito L.G. 1997, *I domenicani in Calabria, ricerche archivistiche*, Napoli, Edizioni domenicane italiane.

[6] Pizzo Calabro was the principal port for goods coming from Naples, while the Rosarno one was the port for goods coming from Sicily. The location of the Monastery was dependent on the closeness to the water which was used as driving force for mills and olive press. The arches of the aqueduct, in granitic local stone, which are still in part visible, lead the water from the adjacent hill of the Angels to the Monastery. Close to the river there was also much material which served to produce lime and blocks for the building of the fabric.

[7] The Monastery, which was the warrantor not only of the religious managing of the town and of the surrounding territory, in 1635 was received under the royal protection that intervened to support its completion. The Lembo, op. cit. says that the king of Spain, Filippo IV, on 15 agoust 1635 sent a letter from Madrid in which he ordered «che la dica Casa està da bajo de mi amparo y sea tratada y favorecida come lo son otras dequeyo tengo la misma proteccion».

[8] Up to the second half of the 18th century the actual town of Soriano Calabro and Sorianello were a unique *Universitas* (City-state) divided in two fractions, the Inferiore one and the Superiore one. The last was the more ancient. With the French administrative system of 19 January 1807 the two fractions became two independent City-states and this remained even after the return of the Borboni and after the unification of Italy. In 1875 the adjective "calabro" was added the name Soriano.

[9] Antonio Tango was charged to draw up the Apprezzo or a detailed estimation of each property. It is a report of all the "State of Soriano" in the middle of the XVII century; the most interesting news are the ones about the number of the families subject to the tax system (fuochi); Soriano was the biggest centre and it counted more than 400 "fuochi". The possessions are described in detail not from an architectonic point of view but for the economic estimation. Anyway the description regarding the Monastery has been lost from the Apprezzo, There are also some lacunae about the castle and the count's palace.

[10] This district still preserves the denomination of Bastia; the blocks of wall of the fortification remained, unfortunately was unmade both because it was no more used as a defence and for the collapses caused by the various earthquakes.

[11] The other three quarters were denominated Braca with the church of St. Francesco, Nigliani with the church of St. Biagio and Nicolello with the church of St. Nicola. The four suburbs were placed to the vertex of a quadrilateral.

[12] The miracles attributed to the picture of St. Dominic have been assembled and published the first time by prior Silvestro Frangipane in 1621.

[13] The painting has been attributed to various artists; all of there were part of Neapolitan art movement of XV century and of the beginning of the XVI century, among which Marco Cardisco and Paolo di Ciacio from Mileto disciple of Antonello da Messina. A "modern" interpretation of the painting must still be made; the shape of the saint, in white habit and black mantle and the triangular basis of support fuse together to signify the principle of unity and of God Trinity; the triangle is the irradiance of the star symbol of wisdom; see as all the particulars aren't structured maybe a drawing was sent or its realization was abandoned without any check to pupils or local performers. It can be supposed an image made through pencil that did not require the painter to work in an accurate way because it was designed to be visible at a distance or also because only the symbolic value was important.

[14] The Lembo, op. cit. writes *...il viceré di Napoli inviò a Soriano fra Bonaventura Presti certosino architetto famoso, per fare un nuovo disegno della chiesa e del convento, come fece, e dopo per maggiore sicurezza lo consultò in Napoli e in Roma con diversi architetti primari...*

[15] A modular regularity and perfect geometric forms were proposed: the quadrangle that contains the circle as a symbol of the sun is regularly reproduced in the marble statues that adorned the church, see fig. 3.

[16] The Franciscan Catalan friar Francisco Eximeniç, in his book "El Crestià" wrote a chapter "Quina forma deu aver ciutat bella e be edificada" identifying the beauty of the city with the order, the functionality, the geometrical symmetry of its parts. It is evident that he wanted to apply this principle both to each building and to the whole town.

[17] The trip was from the tower toward the church; this piece of street became a favourite place of holy character and of adoration, today still obligated in the procession of the Saint.

[18] A splendid view of the landscape of the river Mesima valley toward the town of Monteleone (today Vibo Valentia) can be enjoyed from the street.

[19] The interest of the dominican friars in the region is evident because they bought and built a lot of buildings near the refuge in order to accommodate the pilgrims coming to adore the St. Dominic's image. See the list of the buildings in the "platea" of the Cassa Sacra fasc. 315 foll. 31v-32r contained in the Public Records Office of Naples, and reported by Panarello M. in *La Santa Casa di San Domenico in Soriano Calabro... op. cit.* pag. 121.

[20] In picture 5 it is stressed the optical correspondence between the bell tower of the Monastery and the religious and civil buildings of Soriano (the circle is the church of Saint Martin of Tours of the XII century wrecked by the earthquake of 1905). Rotating through 167 degrees in a clockwise direction, with the dominican bell tower as turning point, we find exactly the same correspondence with the churches of Sorianello (the circle is the lost basiliana church of S. Maria's Angels). An identical connection is also retraceable between the one joining the bell tower and the place were the castle and the axis of the trapezoidal street rose.

[21] Every Mendicant Order has a their handouts on a certain zone; to avoid any conflicts it is convenient an agreement about distance among all the orders.

[22] The sample is reduced to a very thin powder, put down in an appropriate container and pressed in a way to obtain a flat surface for X-ray treatment. The sample is placed in the centre of the diffractmeter and is rotated through a quite low angular velocity, that can be changed according to requirements; in this way the incident radiations hit the sample under different angles *q*, that vary in general between 10° and 90° degrees. The detector follows the turning movement of the sample, but it rolls with a double angular velocity and it checks the intensity corresponding to the peaks of diffraction, that is the angular positions that meet the Bragg conditions. The diffractogram is a sequential recording of the diffraction effects produced by the sample in a period of time: the signal provided by the detector, opportunely amplified, is sent to a recorder whose paper moves forward at a conveniently select velocity. Every deviation of the recorder pen from the position 0 corresponds to a diffraction effect whose intensity is more or less proportional to the height of the peak drawn by the writing pen. With the diffractometer method a very small quantity of the sample can be used as well, and the reading of the diffractograms which are obtained is easy also in

the case of constituted samples. This method presents the main advantage to permit a very careful reading of the angles 2*q* (from 0.005 to 0.01° degrees), also thanks to the fact that the recording can be enlarged according to the increasing of the velocity of the paper (or reducing the rotation of the sample); further it allows a better determination of the intensity because the recording is superior than photographic one; there is a better resolution of the peaks and it presents the considerable value of a big speed of execution and of reading too.

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Summary

The article is extracted from the Master Thesis about Restoration of the Monuments at "La Sapienza", University of the Studies of Rome. The Monastery was one of the most important of the Dominican Order in Europe. The building dates back to year 1510, it broke down almost completely in the earthquake of year 1659. It was rebuilt following the architect B. Presti's project. At the present time the "Saint Domenic" Monastery largely seems a ruin, mainly as a consequence of the cat-

astrophic earthquake in 1783. However, with the new look that has acquired, it still preserves an extraordinary charm that continues to astonish.
The project followed the trend of the critical and conservative restoration with the safeguard of the artistic and figurative data of the “Saint Domenic” Monastery which has been analysed through an accurate historical-critical work. The idea is to preserve and transmit to the future generations the “Saint Domenic” monument in his authenticity, in its formal and material consistence, with the marks of the passing of time. The abstracts reports only the most important aspects which are representative of the project.
Besides the historical analysis, laboratory examination have been executed on the material used in the construction of the ancient facade through the observation of thin sections by optic microscope and with the realization of spectrum of X-ray diffraction, in order to know the nature and composition, the state of preservation and the kinds of deterioration to support an appropriate intervention of restoration.

Riassunto

L’articolo è estrapolato dalla tesi di Specializzazione in Restauro dei Monumenti Università degli Studi di Roma La Sapienza. Il Convento fu uno dei più importanti dell’Ordine domenicano in Europa. La costruzione risale al 1510, distrutto dal sisma del 1659, riedificato su progetto dell’architetto B. Presti. Si presenta nella maggior parte allo stato di rudere a seguito del terremoto del 1783 pur mantenendo, con il nuovo aspetto che ha acquisito, un fascino enorme che continua a stupire.
L’intervento proposto segue l’indirizzo del restauro critico-conservativo con l’intento di trasmettere alle future generazioni il monumento nella sua autenticità e nella sua consistenza materiale e formale. Sono riportate le problematiche del restauro della facciata, del campanile e dell’abside della chiesa che sono rappresentativi del progetto.
Il materiale lapideo della facciata della chiesa è stato sottoposto a caratterizzazione mineralogico-petrografica con l’osservazione di sezioni sottili al microscopio ottico e con la realizzazione di spettri di diffrazione dei raggi X, per conoscerne la natura e composizione, lo stato di conservazione e le forme di degrado al fine di supportare un appropriato intervento di restauro.

Résumé

L’article est extrapolé de la thèse de Spécialisation en Restauration des Monuments Université des Études de Rome La Sapienza. Le Couvent fut un des plus importants de l’Ordre dominicain en Europe. La construction remonte à l’an 1510, détruit par le séisme de 1659, reconstruit sur le projet de l’architecte B. Presti. Il se présente pour la majeure partie dans l’état de ruine à la suite du tremblement de terre de 1783 tout en gardant, avec le nouvel aspect qu’il a acquis, une fascination énorme qui continue d’étonner.
L’intervention proposée suit l’orientation de la restauration critico-conservatif avec l’intention de transmettre aux futures générations le monument dans son authenticité et dans sa consistance matérielle et formelle. Les problématiques de restauration de la façade, du clocher et de l’abside de l’église qui sont représentatives du projet sont reportées.
Le matériel pierreux de la façade de l’église a été soumis à caractérisation minéralogico-pétrographique avec l’observation de sections minces au microscope optique et avec la réalisation de spectres de diffraction des rayons X, pour en connaître la nature et composition, l’état de conservation et les formes de détérioration afin de supporter une appropriée intervention de restauration.

Zusammenfassung

Der Artikel ist aus einer Diplomarbeit zur Restaurierung von Monumenten an der Universität La Sapienza in Rom entnommen. Das Kloster war eines der wichtigsten des Dominikanerordens in Europa, es wurde 1510 gegründet und vom Erdbeben im Jahr 1659 zerstört, dann wurde es nach einem Projekt des Architekten B. Presti wieder aufgebaut. Wegen des Erdbebens im Jahr 1783 ist eine Ruine vom größten Teil davon geblieben, trotzdem hat das Kloster dank seinem neuen Aussehen immer :noch einen großen Reiz, den die Besucher immer bewundern.

Der vorgeschlagene Eingriff ist im Rahmen einer kritischen und konservativen Restaurierung mit dem Ziel, den zukünftigen Generationen das Denkmal in seiner Authentizität und in seiner materiellen und formellen Konsistenz zu übertragen.
Das Steinmaterial der Fassade der Kirche wurde einer mineralogischen – petrographischen Charakterisierung unterzogen, es wurden dünne Querschnitte durch ein optisches Mikroskop betrachtet und Beugungsspektren von Röntgenstrahlen erzeugt. So konnte man die Beschaffenheit, die Zusammensetzung, den Erhaltungszustand und das Verfallniveau des Materials feststellen, um den geeigneten restauratorischen Eingriff zu planen.

Resumen

El artículo se ha extrapolado de la tesis de Especialización en Restauración de Monumentos de la Universidad La Sapienza de Roma. El Convento fue uno de los más importantes de la Orden de los dominicos en Europa. Fue construido en 1510, destruido por el terremoto de 1659 y reedificado según proyecto del arquitecto B. Presti. Se presenta en su mayor parte en estado ruinoso a causa del terremoto de 1783, si bien, con el nuevo aspecto adquirido, conserva un enorme encanto que todavía suscita asombro.
La intervención propuesta sigue una orientación de restauración crítico-conservadora, a fin de transmitir a las futuras generaciones el monumento en su autenticidad, manteniendo su consistencia material y formal. Se presentan las problemáticas de la restauración de la fachada, del campanario y del ábside de la iglesia que son representativos del proyecto.
El material lapídeo de la fachada de la iglesia ha sido sometido a una caracterización mineralógico-petrográfica mediante la observación de sutiles secciones en el microscopio óptico y con la realización de espectros de difracción de los rayos X, para conocer su naturaleza y composición, el estado de conservación y las formas de degradación, a fin de sostener una adecuada intervención de restauración.

Резюме

Статья взята из диссертационной работы на тему о реставрации памятников культуры. Диссертация написана в римском университете «La Sapienza». Монастырь, о котором идет речь, был одним из самых важных во владении доминиканского ордена в Европе. Его постройка восходит к 1510 году. В 1659 году монастырь был разрушен во время землетрясения и затем перестроен по проекту архитектора Б.Прести (B.Presti). Из-за землетрясения 1783 года монастырь представляет собой по большей части развалины, сохраняя, между тем, из-за нового вида очаование, продолжающее удивлять и сегодня.
Предложенные реставрационные работы носят критико-консервативный характер и нацелены на передачу будущим поколениям этого исторического памятника во всей своей аутентичности и сохранности материи и формы. Рассматриваются проблемы реставрации фасада, колокольни и абсиды церкви.
Каменная облицовка фасада церкви была подвержена минералогическо-петрографическому исследованию, изучая, в особенности, тонкие слои под оптическим микроскопом и создавая дифракционные спектры лучей X. Все это было необходимо для исследования природы и состава материалов, их степени сохранности и разложения, для выявления наиболее подходящих реставрационных работ.