European Journal of Science and Theology, February 2017, Vol.13, No.1, 189-198

A NEW HISTORICAL PERSPECTIVE REGARDING THE BAPTISMAL FONT OF THE CATHEDRAL OF MONREALE (SICILY) THE IDENTIFICATION OF A REUSED ROMAN LABRUM BY AN ANALYTICAL APPROACH

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(Received 13 April. 2016)

Abstract

The Cathedral of Monreale (not far from the city of Palermo) is one of the most famous monuments of the Arab-Norman period in Sicily recently added to the World Heritage list by UNESCO. It is well known above all for its structure and the magnificence mosaic decorations inside. In the church it is also conserved a Baptismal Font made of coloured limestone and dated back to the first decade of the 17th century. The present study deals with this valuable object with the aim of obtaining information about the nature and provenance of the coloured limestone constituting the basin. Laboratory analyses were thus carried out on representative stone samples by means of polarized light microscopy as well as C and O stable isotope mass spectrometry. The obtained results revealed the provenance of the coloured marble from the island of Chios (Aegean Sea), accordingly corroborating the suggestive hypothesis of the re-employment of a marble basin (*labrum*) of Roman age during the Renaissance. This paper provides a new contribution to the understanding of the historical and architectural development of the Cathedral of Monreale highlighting a new example of re-employment and reworking of precious stone in antiquity.

Keywords: Baptismal Font, *Portasanta* marble, isotopic analysis, Monreale, Sicily

1. Introduction

The Cathedral of Monreale, ancient town located at few kilometres from Palermo (north western Sicily) was founded in the 1174 by the Norman King William II. At his death in the 1189 the church was still unfinished and it was completed only in 1267. The Cathedral of Monreale is renowned due to its opulently interior decorated with precious mosaics, dated back to the 12th and

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13th centuries, which cover entirely the walls of the nave, aisles, transept and apse (Figure 1A and 1B). As other churches of the same importance in the following centuries it underwent several changes.

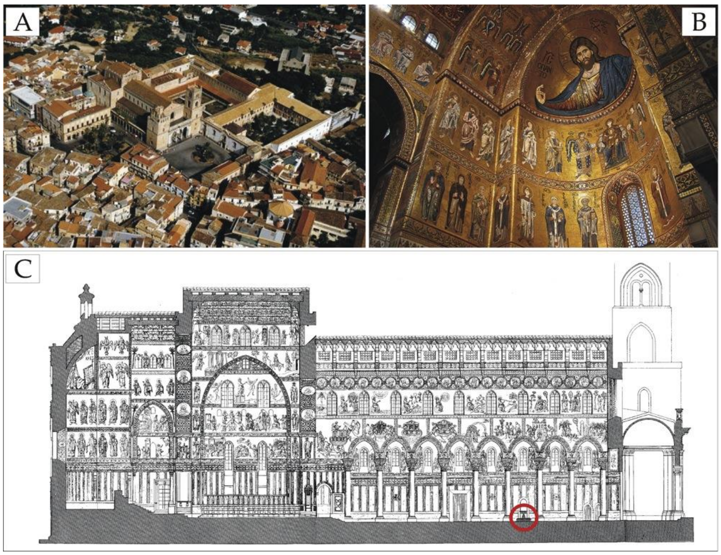

Figure 1. (A) Aerial view of the Monreale Cathedral, (B) central apse with mosaic decorations, (C) cross section with the present position of the Baptismal Font (red circle).

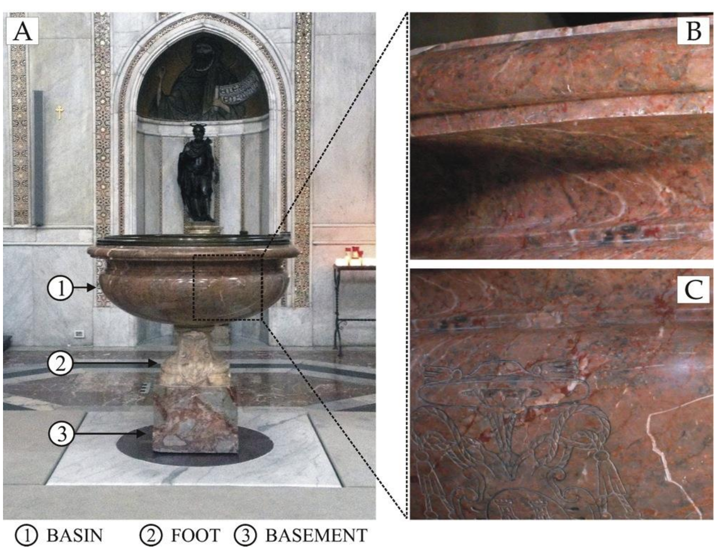

Figure 2. (A) Whole picture of the Baptismal Font, (B) and (C) details of the basin.

The object of this study is the Baptismal Font, made by a reddish brecciated limestone that was completed for the will of the archbishop Ludovico II de Torres to substitute an older one in the first decade of the 17th century [1-3]. It was originally placed under the pulpit inside the chapel of Saint John the Baptist. However, it was moved from this position and positioned between the second and third column of the right aisle, where still stands at today (Figure 1C).

The Baptismal Font is a very fine work of art, made with a chalice shape by using different calcareous stones in terms of quality and preciousness. It is composed of three elements: the basin, the foot and the basement (Figure 2). The hemispheric basin shows an overhanging lip that is 453 mm high and it has a diameter of 1160 mm. It is made of a red limestone, macroscopically recognized as *Portasanta* or *Marmor Chium*, a polychrome limestone widely imported from the Island of Chios (north Aegean region) during the Roman imperial period [4]. The foot, composed of white marble from Carrara (*statuario* variety), is shaped as a parallelepiped upon which rests a fluted truncated cone holder. A bas-relief with the coat of arms of archbishop de Torres is depicted in correspondence of the main side like on the basin. The basement is a cube made of a Sicilian polychrome limestone called *Libeccio Antico* [5].

Although the Baptismal Font is dated to the late Renaissance period by the written sources [1-3], a more ancient origin of the basin could be assumed according to the type of the constituting stone material. For this reason a scientific investigation coupled with a detailed historical analysis was carried out. In fact, even though the *Portasanta*/*Marmor Chium* is easily recognizable on a visual level despite being known different varieties according to its macrostructure and overall colour [6-10], there is an Italian limestone with amazing macroscopic similarities. This latter lithotype, also called *Portasanta* by the stonecutters, was quarried in the territory of Caldana (Grosseto, Italy) and above all used during Renaissance period. The *Portasanta* from Caldana has been recently investigated allowing to a clear distinction on isotopic basis (C and O stable isotopes) between the Italian and the Greek lithotype [11]. For this reason, in this study the petrographic characterization and the isotopic analysis were also carried out with the aim to identify what type of *Portasanta* (Greek or Italian) was actually used for the manufacture of the basin of the Baptismal Font in the Cathedral of Monreale, thus scientifically supporting the provenance hypothesis.

2. Use in antiquity and geolithological outlines

The island of Chios (Greece) produced a polychrome limestone known to the Romans as *Marmor Chium* and to the Italians stonemasons as *Portasanta*. It was one of the first imported coloured marbles from the Romans, being particularly popular since the time of Augustus (late 1st century BC) up to the 4th century AD. It was used for columns, wall panels and floor decorations due to its workability. The name *Portasanta* is actually related to the use in the jambs of the holy doors of the Saint Peter's Basilica and the Saint John Lateran church in Rome [4, 7, 9]. It became popular again in the 16th century during the Renaissance period in the form of re-used stones in building practice of Rome and other Italian cities. The *Marmor Chium* quarries are 2 km north of the town of Chios in a locality named Latomi. The lithotype, which can be classified as recrystallized limestone half-way to becoming a marble, is commonly a polychrome breccias, with salmon-pink, red and white inclusions and cream, pinkish or grey groundmass [12]. Its colour reflects the abundance of iron-bearing mineralogical phases, particularly haematite and goethite. The lithotype is of Triassic age and it is probably part of a sheet of rock thrust over the surrounding Palaeozoic and Neogene sediments [12].

The *Portasanta* variety from Caldana belongs to the geological formation well known in Italy as *Calcare Massiccio* [13]. This lithostratigraphic unit generally looks massive with slightly coarse stratification visible only in the upper part of the stratigraphic succession. In the area at the eastern side of Poggio Paganella, northeast of the village of Caldana, there is the outcrop of a particular lithofacies named *Calcare a Crinoidi* dated back to the lower Jurassic (Hettangian-Sinemurian). To be emphasized that both the concerned rock types (*Portasanta* from Chios and Caldana) have formed in similar paleogeographic contexts deriving from the diagenesis of deep-sea pelagic sediments and roughly belong to the same chronostratigraphic horizon (upper Triassic-lower Jurassic). The overall thickness of Poggio Paganella outcrop is about 60 m even if the most commercially interesting horizon does not exceed 30 meters. It is composed of fine-grained limestone and dolomitic limestone, generally ranging in colour from dark grey to light grey or white. The top of the outcrop is often coloured in pink, reddish and violet. Only this variously coloured horizon was appreciated in the past for ornamental use. It was quarried surely since the 16th century and specifically named *Portasanta* by local stonecutters for the macroscopic similarity with the original stone of the island of Chios. Although the employ during the Roman period is still strongly questioned the use of this stone was attested in several important renaissance monuments of Tuscany [11, 13]. Cultural contacts and exchanges of stone materials from Tuscany and Sicily, from the late Renaissance and the Baroque period, were known as very intense [14].

3. Materials and methods

The scientific study was carried out by a small stone sample carefully collected from the inside of the basin of the Baptismal Font of the Cathedral of Monreale. Sampling has been strongly limited and driven by conservative criteria. In fact, in order to not further damage the original stone surface, the sample needed for the analytical procedures was taken by using a stainless steel scalpel in correspondence of a pre-existent fracture. The sample was analysed for stable C and O isotope composition. CO_2 from powdered sample was obtained by classical phosphoric acid – calcium carbonate reaction method by an automated Carbonate Preparation Device (Thermo Scientific GasBench II). The 44-mass peak area was used to determinate the $CaCO_3$ content. The carbonate isotopic compositions ($\delta^{18}O$ and $\delta^{13}C$) were measured by Thermo Scientific Delta V Advantage continuous flow isotope ratio mass spectrometer. Results are expressed in delta (δ) notation relative to the V-PDB standard. Precision of the carbon and oxygen isotope ratios for duplicate analyses improved to 0.1 and 0.2‰, respectively. Thin section microscopic observation under transmitted polarized light was additionally performed on a sample of original *Marmor Chium* in order to compare the mineralogical and textural characteristics with those of the stone from Caldana recently reported in previous study [11].

4. Results

Portasanta from Chios have white calcite-filled fractures and abundant stylolites (zigzag lines containing insoluble residues left when the stone has been compacted during burial). Stylolites coloured red, pink or orange by iron oxides, form the net-like arrays that feature in some examples of Chios Portasanta.

Portasanta from Caldana is a brecciated and varicoloured limestone similar to the more famous Greek 'Portasanta', in which breccia elements of grey, pinkish grey, more or less dark red and sometimes yellow, were embedded in a pinkish grey calcareous matrix. The brecciated appearance does not seem to be due to the accumulation of debris, but only to a particular phenomenon of diagenesis; the elements of the pseudo-breccias do not appear very distinct, but blend with cement. Its macroscopic aspect varies from massive (compact feature, sometimes with micro cracks and uniform colour varying from red to grey), to brecciated with clasts which vary from grey to pink to red-brown (sometimes yellowish) in a red to grey-red matrix.

Thin section observation of the *Portasanta* from Chios allowed to identify the sample as a brecciated limestone, with isotropic and heteroblastic texture. Breccias elements were represented by homogenous micritic calcite, independently from the colour. Some regions were interested by a recrystallization process of a relatively coarse grained calcite. Stylolites formed along boundaries between calcite grains are also evident and they are outlined by reddish fine-grained iron oxide and calcite. Accessory minerals were represented mainly by quartz and haematite (Figure 3).

From the observation of thin sections of the *Portasanta* from Caldana two varieties could be to some extent distinguished [11]. The massive variety is very fine-grained with a micritic appearance, lacking recrystallization, and can be classified as a wackestone. The brecciated variety is characterized by carbonate clasts belonging to micritic stones of a few millimetres; they are embedded in a carbonate matrix partially recrystallized and oxidized to hematite with clearer zones. A double system of veins is evidently visible and filled with spatic calcite of secondary origin.

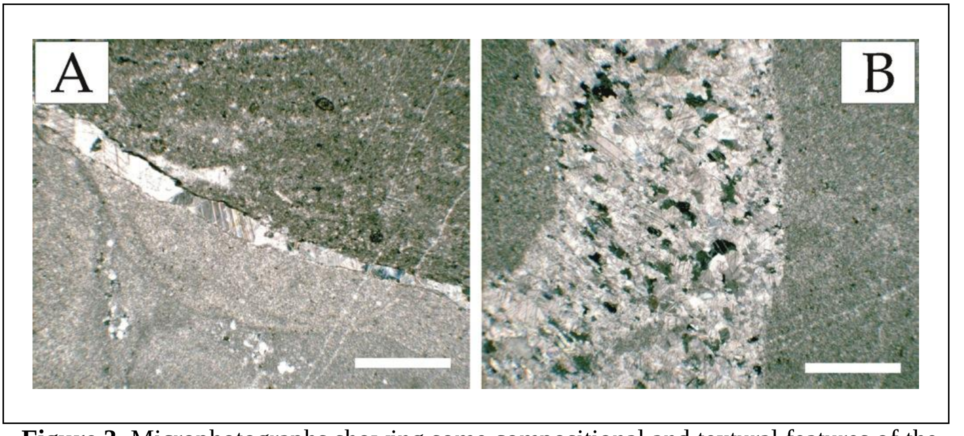

Figure 3. Microphotographs showing some compositional and textural features of the *Portasanta* from Chios (crossed Nicol, scale bar 0.5 mm).

The approach based on measurement of the isotopic ratios of carbon and oxygen has produced interesting and promising results ever since its first appearance [15, 16]. In recent decades, isotopic data sets were significantly implemented by Moens et al [17, 18] and Gorgoni et al [19], producing excellent reference diagrams for marbles coming from the main quarries that were active in Greek and Roman times. According to the compilation of Lazzarini [10], these diagrams have been widely used by archaeometric measurements also for other marbles belonging to the Mediterranean basin.

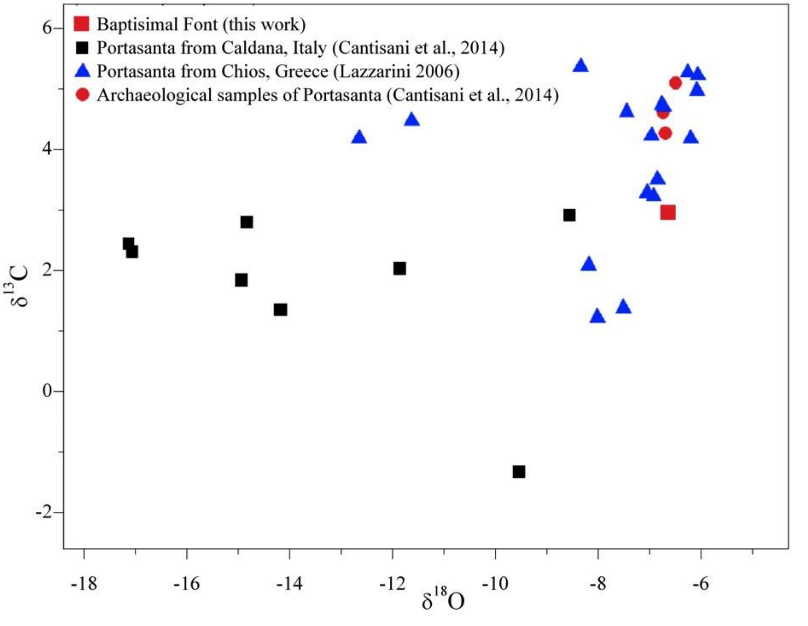

Figure 4. Isotopic composition of the Baptismal Font compared with isotopic ratios of Portasanta from Caldana [11] and Portasanta from Chios [20] and some archaeological sample [11].

The origin of the investigated marble was inferred firstly by applying the parameters classically used for this purpose; that is, the C and O isotope composition. The isotopic data of the material sampled from the Baptismal Font of the Cathedral of Monreale is reported in Figure 4 compared with the isotopic ratios of *Portasanta* from Caldana and from Chios obtained by literature [11, 20].

Also from literature data, the limited number of analysed samples, for both provenances, does not clearly define the isotopic fields of the two different quarries on statistical basis. It is clear that there is an overlapping trend of the isotopic data of different provenance (Italian and Greek). Surely an increase of the number of examined samples of both provenances could be very useful to confirm or refute this tendency. Concerning the sample of Baptismal Font analysed in this study, the value of isotopic data ($\delta^{13}C = 2.96$ and $\delta^{18}O = -6.64$) seems to clearly converge towards the data of *Portasanta* from Chios. In fact, the isotopic data show that the range of $\delta^{13}C$ in the *Portasanta* from Chios varies between +1.03 and +5.60, and the $\delta^{18}O$ between −5.45 and −12.50. In the *Portasanta* from Caldana these data vary respectively between −1.79, + 2.90 and −17.30, −8.11. It is therefore possible to state that the analysed sample from Baptismal Font of the Cathedral of Monreale falls within the range of variability of the isotopic data of the samples from the quarry of Latomi (Island of Chios).

5. Historical and stylistic considerations

In the Greek and Roman period, the water-filled vessels fixed on a central holder were produced continuously in the identical manner and purposes over a long period, from the Archaic age to the Late Antiquity [21]. The term *labrum* (pl. *labra*) will indicate vessels and circular basins to hold water, made of clay, bronze, marble, stone and porphyry to be used for fountains, ornamental basin of private residences, holy water basins, vessels and urns [21]. The *labra*, in general, are characterized by a semi-spherical shape, with a flattening on the bottom and a continuous profile, arc of a circle, which joins the lip to the bottom plate passing through the curved body.

The Roman the use of the *labrum* is widely attested in public and private sectors. The functions were religious and laic. The laic use includes both hygienic-therapeutic reasons or utilitarian and ornamental ones [Cicerone, *Epistulae ad Familiares*, XIV, 20; Petronio, *Satyricon*, 73, 4; Lucrezio, *De Rerum Natura* VI, 800]. When placed in public and private baths the *labrum* was used not only for hygienic-therapeutic purposes but also for a decorative reason, thanks to the preciousness of the used stone. Moreover, *labra* were usually employed in other parts of the Roman *domus* or *villa*, for example inside the garden and the courtyard with both ornamental and irrigation functions [22]. *Labrum* became a particularly loved garden furniture for luring birds and converting the environment in a *locus amoenus* as recorded by several roman wall paintings and written sources [23].

The cultic value of the *labra* is unchanged until the Christian period, when the term was used for identifying the stoups for purifying ablutions placed at the entrance of the churches and specifically for the Baptismal Font [22]. In Efeso and Priene, *labra* are acknowledged to have been re-used for Baptismal Fonts like in the Monreale Cathedral. In Rome a big porphyry *labrum* in the Santa Maria Maggiore Basilica is used like Baptismal Font and in Venice a small porphyry *labrum* was used like a stoup [24].

The researches carried out by A. Ambrogi have classified the *labra* on the basis of the morphological features, the materials and the dimensions [21, p. 149]. *Labra* were produced with several marbles or hard stones by using different techniques. However, a stylistic and technical homogenization of the workshops has been acknowledged, based on the standard models produced on a large scale following the customer's demand (private or public). From the analyses of several unfinished *labra* found in the ancient quarries, A. Ambrogi was able to understand the productive process. The *labra* produced with coloured marbles can be distinguished for the high quality, the elegance of the shape and the dimension. Most of the *labra* made with coloured marbles used during the ancient time have been discovered as single examples. The preciousness of the *labra* is due also for the typology of used marble; it was much appreciated the effect due to the water, because it intensified the brightness of the marble's colour. Generally the technical quality is highest for the *labra* made in coloured marbles, because they were considered expensive materials. The most elaborated works were generally made for the public context, while the more simple pieces were used for decorative (courtyard) and functional (bath) purposes in private context [21, p. 51].

Considering the dimension of the basin (*labrum*) of Baptismal Font in the Cathedral of Monreale, it is likely that it was made for a private use, inside a *domus* or *villa*. On the basis of the classification made by Ambrogi, the basin from Monreale should be classified as 'VIII type' (luxurious), for the overhanging lip and the articulated succession of concave neck and the convex belly. However, it is rather distant from this typology for the lack of the handles and for the stumpy proportions. The richness and the rareness of the material used, Greek *Portasanta* limestone, support the hypothesis that it was commissioned on demand. The type of basin is similar, even if the shape is simplified, to the porphyry basins from Naples (*Templum Pacis*) and to the fragments conserved in Potsdam in the garden of the Klein-Glienicke castle [21]. It is very likely that the basin from Monreale was re-worked in early Baroque period. The holder, in white marble, was surely made in the 1608, but its bell-shaped stem on an octagonal plinth remembers the typology of the ancient holder of the 'III type'. For this reason it is likely that the sculptor could have known other example of Roman *labra*.

6. Conclusive remarks

The correlation of the technical, artistic and the analytical data support the hypothesis that the basin of the Baptismal Font of the Cathedral of Monreale is an example of re-use of an original Roman *labrum* made of *Portasanta* or *Marmor Chium* during the first decade of the 17th century. The following considerations led to this argumentation:

- The analytical results, and especially those obtained from the isotopic analysis, have confirmed the marble of the basin is Greek *Portasanta* marble, widely used in the Roman period.
- The technical and artistic analyses of the basin drive to suppose it was an ancient Roman *labrum*, likely found in Rome, because some records indicate the provenance from Rome of the sculptors that the archbishop Ludovico I de Torres brought with him in Monreale [1].
- It is likely that the ancient basin was partially re-worked for creating the new Baptismal Font in the 1604 by the will of the archbishop Ludovico de Torres I.

Acknowledgment

Dr. Scopelliti Giovanna is acknowledged for the support during the isotopic analysis.

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