

THE WALL MOSAICS AT THE CATHEDRAL OF EUFRASIUS IN POREČ:  
A PRELIMINARY REPORT

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*This article provides the findings of a study of the 6<sup>th</sup> century wall mosaics at the Eufrasiana. It was based on a visual analysis of the lower mosaics (to the inscription) done from scaffolding during June of 1997. After a review of the conservation history and pre-restoration records, the authors characterize three phases of mosaics: the original work, a limited restoration from 1886 (Solerti), and an extensive restoration from 1890-1900 (Bornia). Analyses are offered of both the original and restored tesserae, setting beds and setting techniques. Bornia took great pains to preserve as much as possible of the original mosaics.*

This article constitutes a preliminary report on our study of the wall mosaics at the Eufrasiana in Poreč, fieldwork carried out in June of 1997.<sup>1</sup> Our work this season had two primary components. The first aim was a visual examination of the mosaic surface, in order to assess the materials and techniques used by the original mosaicists of the 6th century, as well as those employed by subsequent restorers of the mosaics. The second goal was the preparation of a computerized data base of images which will eventually publish and publicize the mosaics in their entirety. In addition to the authors, the team consisted of Steve Nickerson of Nickerson Associates in Ottawa, Canada, who created the data base, and Jennifer Hanson, a student assistant from Wittenberg University. We also had the benefit of consultations with Irina Andreescu-Treadgold, who visited the site during the second week. This report begins with brief summaries of the preservation history of the mosaics and the documentary record, followed by more detailed account of our visual analysis of the mosaics.

The wall mosaics of the Eufrasiana, although well known to students of the late antique and early byzantine periods, have never been studied in a serious or comprehensive fashion.<sup>2</sup> The impetus for our present study is related to the recent discovery of numerous documents pertaining to a late 19th century restoration of the mosaics.<sup>3</sup>

The restoration was arranged and overseen by Austrian officials as, at the time, Poreč constituted part of the Austro-Hungarian Empire. The documents, in collections at the *Allgemeines Verwaltungsarchiv* and *Bundesdenkmalamt* in Vienna, consist largely of communications between two official agencies involved in the preservation of cultural monuments. The *k. k. Central Commission zur Erforschung und Erhaltung der Kunst- und historischen Denkmale* (the Central Commission for the Study and Preservation of Art and Historical Monuments, hereafter CCD) advised the *Ministerium für Cultus und Unterricht*, Ministry for Church Affairs and Education, hereafter MCU.<sup>4</sup> When citing the documents in this text, we will place the reference (year, document number, agency) at the end of relevant



Fig. 1. Apse Mosaics of the Cathedral at Poreč

sentences. A preliminary report on these documents is forthcoming, and a full assessment will appear in our final report on the mosaics of the Cathedral of Eufrasius.<sup>5</sup>

The Eufrasiana, while of inestimable value to scholars as the best surviving example of a cathedral complex, is probably most well known for the splendor of its wall mosaics, the jewel of a remarkably well preserved decorative program (Fig. 1).<sup>6</sup> The basilica and its mosaics date to the

6th century episcopacy of Bishop Eufrasius, whose dedicatory inscription and donor portrait figure prominently in the apse. The most substantially preserved mosaics cover the apses and the triumphal arch of the basilica, but panels in various states of preservation also appear on the east and west facades of the building. As was conventional in the period, figural subjects are set within architectural units defined and emphasized by decorative borders: Christ and the apostles (triumphal arch); medallions with female saints (intrados); an enthroned Virgin and child flanked by archangels, unnamed saints, and, as identified by inscriptions, St. Maurus, Bishop Eufrasius, Archdeacon Claudius, and his son Eufrasius (half dome of the apse); a dedicatory inscription (base of half dome), the Annunciation and Visitation (sides of the apse); the standing figures of Zacharias, an angel and John the Baptist (window piers); and Christ crowning pairs of martyrs (side apses). On the lower west facade, heavily restored, are apostles and candelabra. Only faint traces survive of a Christ in Majesty (upper west facade) and the Transfiguration(?) (upper east facade). The decorative borders are dominated by jeweled bands, but also include scallop shells, helices, and inlaid mother-of-pearl oyster shells. Spiraling ribbons and florets line the intradoses of the four apse windows.

The wall mosaics, which were recently cleaned (1994), are brilliant in color and appear extremely well preserved.<sup>7</sup> But they do not survive in a completely original state as even a glance at the mirror finish of the restorer's gold tesserae betrays. Two types of sources provide information about the original mosaics, first, restoration documents and second, pre-restoration descriptions and visual representations. We offer here a brief summary of each.

### CONSERVATION HISTORY OF THE MOSAICS

The mosaics were restored twice in the late 19th century, and a series of minor repairs or restorations occurred throughout the 20th century. That a 19th century restoration took place is relatively well known, as certain methods used by the restorers prompted intense debate in the literature of the period.<sup>8</sup> But few details of the work were recorded in the scholarly literature, and those that were distorted, victims of the mercurial events in the subsequent political history of Istria (Austrian to 1918; Italian to 1945; Yugoslav to 1991).<sup>9</sup> The discovery of voluminous restoration documents in Vienna has fortunately filled in many gaps regarding the 19th century restorations. The documents offer especially detailed, and often dramatic, narratives of the decision making processes and personalities involved.<sup>10</sup>

The documents reveal two restorations during the late 19th century. The first was a trial restoration in 1886 by the Albert Neuhauser Mosaic Firm in Innsbruck (1887-D#0366/ccd; 1888-D#12773/ix/ccd; 1888-D#0799/ccd). A mosaicist named Luigi Solerti was contracted to restore 5.6 sq m of the scene of the Annunciation, apparently one of the most damaged areas in the apse. By the time he had finished, he had restored 12.8 sq m (1888-D#12773/ccd).<sup>11</sup> Although initially well received, this restoration soon fell into disfavor (1887-D#0366/ccd). The documents are vague about the reasons, but we learn indirectly that the technique and the gold tesserae were at issue (1889-D#0137/ccd; 1891-D#0467/ccd).

The second restoration (1890-1900) was far more comprehensive. After some difficulty in choosing a master,

Pietro Borna from the Vatican mosaic studio was called to execute a trial restoration in 1888.<sup>12</sup> After restoring 3 sq m of the Visitation, and cleaning an additional 10 sq m, he was given a contract for a complete restoration of the apse mosaics (1888-D#1280/ccd; 1889-D#0012/ccd; 1889-D#0137/ccd; 1890-D#0513/ccd).

Borna's restoration may be divided, roughly, into two different periods. The first (1890-95), adequately funded and, from all indications, energetically executed, initially concentrated on the mosaics of the apse (including the Annunciation, which may have been reresetored) and then on those of the triumphal arch. The panel of Christ and the Apostles on the triumphal arch was discovered in May of 1890, shortly after Borna had begun work. While Borna had assistants during this period, it would appear he maintained substantial control over the course of restoration. The second period (1895-1900), during which the side apses and west facade were restored, turned out differently. Plagued by budgetary and personnel problems, these efforts were less cohesive. Borna, by then in his 70's, seems, from the documents, less prominent in the decision making processes. His assistants, particularly the Parentine father Lorenzo and his son Rodolfo Sferco, appear to have taken on increased roles.<sup>13</sup>

While the Austrian documents are a rich source for a narrative history of the restorations, they are less forthcoming about the concrete particulars of methods and materials. We learn a general chronology of what was restored during which season, and we also learn that different methods of restoration were applied to different areas of mosaics, and we learn some specifics regarding materials, particularly the gold tesserae.<sup>14</sup> But what the documents do not disclose, and what is of great interest to art historians, is precisely which parts of the mosaics are substantially original and which parts are largely the product of restoration.

Two efforts involving at least minor repair or restoration occurred during the 20th century (1950; 1994), though we are less well informed about the particulars.<sup>15</sup> Both of these efforts related to the removal of measures designed to protect the basilica and its mosaics from the ravages of war. The first, which may be loosely dated to the 1950s, followed World War II, and the second, dating to 1994, marked the aftermath of the recent war in Croatia. Both times glue was applied to the mosaics, which were then covered either with cloth or paper. The intent was to preserve the fabric of the tesserae even in the event that the apse collapsed. In each case, the removal of the glue either introduced problems, or made restorers aware of endangered areas of the mosaics.

In the summer of 1944, Mario Mirabella Roberti, in what was probably the final official action under Italian conservatorship, oversaw the gluing of burlap to the mosaics.<sup>16</sup> The apse mosaics were then sandbagged, and a brick wall was built around them. These measures were not dismantled until 1948, when the care of the monument had passed to the Yugoslav regime. The removal of the glue presented some problems, dislodging tesserae which were probably already in an endangered state.<sup>17</sup> Later in the same decade, when tension and compressions struts were applied to the walls of the basilica, restorers ran into an additional problem.<sup>18</sup> The windows in the basilica were left open for a prolonged period so that the internal and external joists could be connected. The consequent frequent and dramatic fluctuations in the temperature, along with climatic



Fig. 2. Engraving of Mosaics, 1763

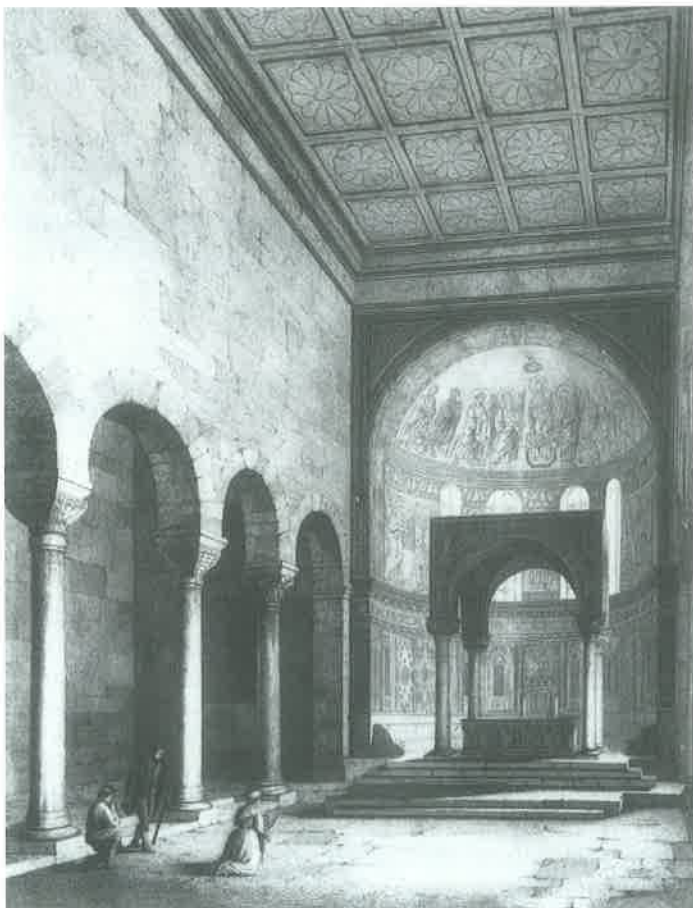


Fig. 4. Engraving of Basilica from von Eitelberger, 1858

variations inside the building proved too much for many weakened tesserae. Groups of tesserae — the quantity is unknown — fell to the floor of the apse.<sup>19</sup> The original gold tesserae were especially susceptible to these conditions, and many were thus split, their transparent upper halves plummeting to the ground. We have very few specifics about the measures taken to counteract these problems. Šonje characterized the restoration work related to these phenomena as “some minor intervention,” implicating by name only the panel of the Visitation.<sup>20</sup>

In 1994, similar circumstances surrounded the removal of glue from the mosaics after the recent conflict in Croatia,

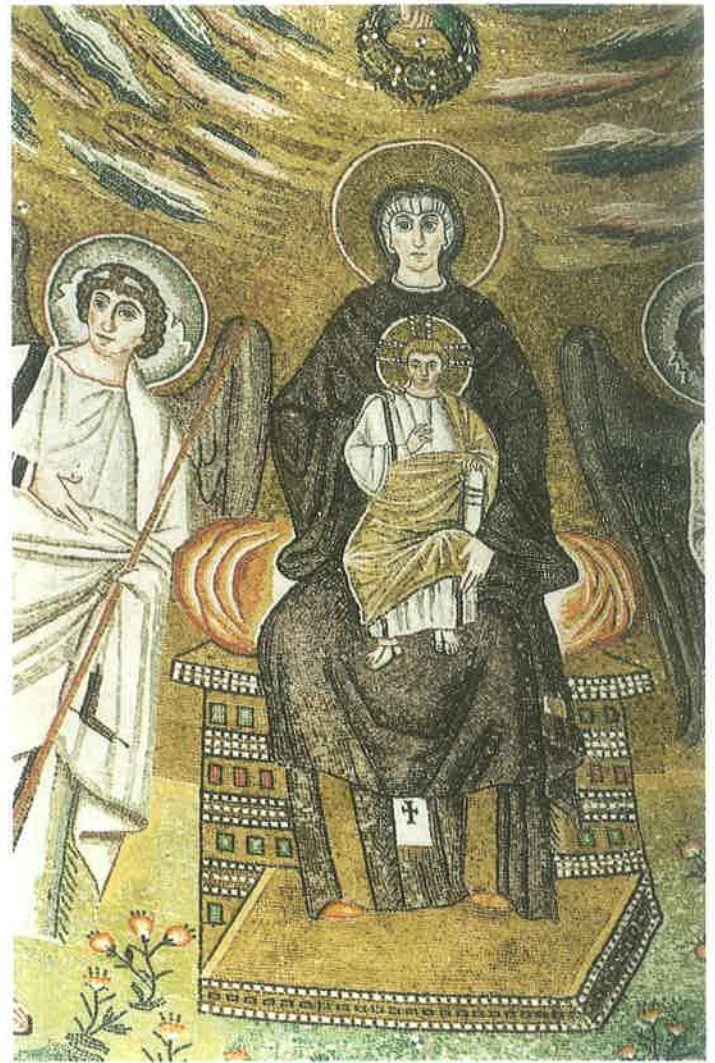


Fig. 3. *The Virgin and Child Enthroned*

although we can record it only from informal conversations with some of those who took part in the project.<sup>21</sup> The glue, having been designed for this purpose, came off easily, but certain patches of tesserae, especially those on beds of corroded mortar, succumbed to the stress. Among the areas affected were the lamb in the medallion at the apex of the triumphal arch, and some of the gold around the figure of Eufrasius. As the glue was removed from the mosaics, they were cleaned.

Though we have limited accounts of the interventions in the 20th century, it seems clear that they were quite minor in scope.<sup>22</sup> Rather the restorations of the 19th century, and in particular that by Borgia, emerge as the main factor in assessing the date of the fabric of the mosaics.

#### PRE-RESTORATION DESCRIPTIONS AND DOCUMENTS

There are several pre-restoration descriptions and visual representations of the mosaics, but these sources unfortunately raise more questions than answers concerning the extent of restorations. Without giving an exhaustive survey of the material, in this preliminary report we will indicate the nature of the problems through a few conspicuous examples.

The earliest preserved visual record of the mosaic in the apse is an engraving made in 1763 (Fig. 2).<sup>23</sup> Apart from general stylistic differences, the most striking discrepancy between the eighteenth century rendering and the mosaic in

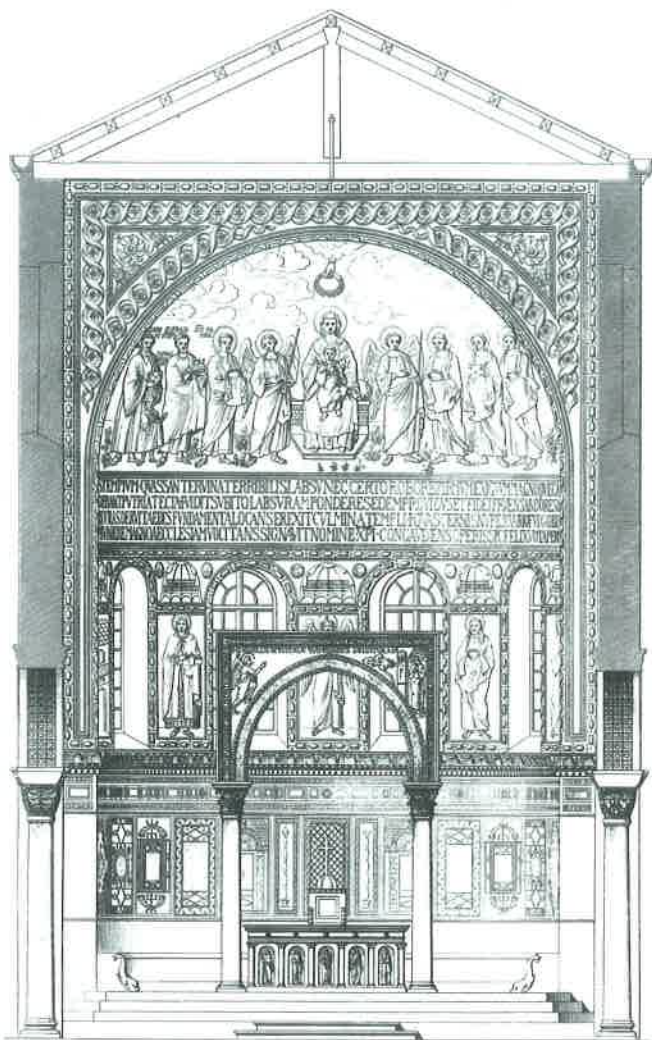


Fig. 5. Engraving of Apse from Lohde, 1859

its present form is the shape of the footstool of the Virgin's throne. In the engraving the footstool is shown from a symmetrical frontal perspective, with its two sides receding obliquely to the left and the right, whereas in the present mosaic both sides of the footstool recede to the right, creating an asymmetrical composition (Fig. 3). The symmetrical treatment of the footstool is also shown in an engraving published in 1858 by R. von Eitelberger (Fig. 4).<sup>24</sup> In addition, von Eitelberger's rendering shows the motif in the medallion at the apex of the arch as a christogram, instead of the lamb with a cross nimbus that appears there now (Fig. 1). He also describes the christogram in his text.<sup>25</sup> However, von Eitelberger's engraving has to be used with caution, as it is evidently not reliable in all respects. For example, it changes the sequence of the capitals in the nave of the basilica (compare Figs. 4 and 10).

In an article published a year later, in 1859, L. Lohde provided a more detailed description and engraved reproductions of the mosaics (Fig. 5).<sup>26</sup> The perspectives of his engravings do not show the medallion at the apex of the apse, but his text agrees with von Eitelberger in describing the motif there as a monogram of Christ.<sup>27</sup> His illustrations also accord with von Eitelberger and the eighteenth century engraving in giving to the Virgin's footstool a symmetrical frontal perspective. Unlike the two earlier views, the illustrations published by Lohde show clearly the three figures between the windows of the apse. In the mosaic as it



Fig. 6. John the Baptist (south pier)

is today, the left hand figure (north window pier) is characterized as Zacharias, wearing long shoulder-length white hair and a long pointed beard, and carrying a casket in his left hand and a censer in his right (Fig. 32). In Lohde's plates, however, he appears as a beardless saint with shorter hair, carrying a casket, but not a censer (Fig. 5). Instead of the two chains of the censer descending from the right hand of the saint, the engraving shows a cord tied around the saint's waist, with its two ends descending in positions analogous to the chains of the censer seen today. The right hand figure (south window pier) is now characterized in the mosaic as John the Baptist, with long dark hair and a long pointed beard (Fig. 6). He wears a hair shirt under his white over garment, and carries a cross-headed staff in his left hand. In Lohde's engraving (Fig. 5), this figure is shown as a saint with medium-length hair and a short beard, carrying a wreath in his two hands, and dressed in the same manner as the martyrs shown above in the semidome of the apse, that is, without a hair shirt. The description in Lohde's text only partly corresponds with his illustrations of these two figures. He identifies the left hand figure not as Zacharias, but as "wahrscheinlich S. Maurus", perhaps on account of a perceived similarity to the saint identified by inscription as St. Maurus in the vault above. On the other hand, in referring to the right hand figure, Lohde repeats without comment von Eitelberger's identification of him as John the Baptist, even though the figure portrayed in Lohde's plate has a costume inappropriate to this identifi-

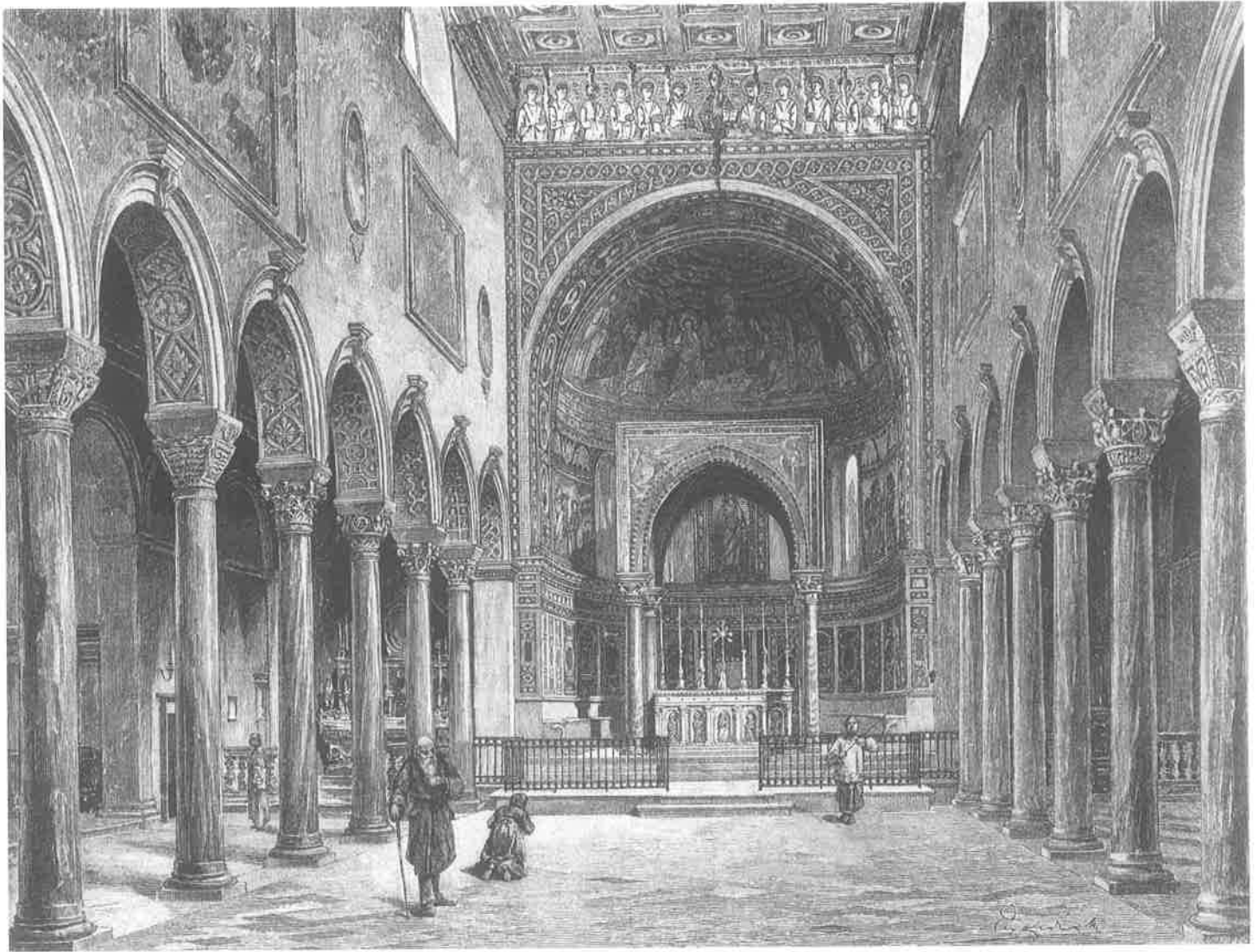


Fig. 7. Engraving of Basilica from 1890–91

cation.<sup>28</sup> In general, it should be observed that while Lohde's descriptions and engravings are certainly more detailed and more careful than those of von Eitelgerger, they still contain some minor inaccuracies. For example, in Lohde's overall view of the apse, the wrong design fills the west face of the easternmost capital of the north arcade (compare Figs. 5 and 10).

In the tenth volume of the series *Die Österreichisch-ungarische Monarchie in Wort und Bild*, published in 1891, an engraving of the sanctuary of the Eufrasiana depicts the mosaic of Christ and twelve apostles above the triumphal arch, which had been discovered the year before in 1890 (Fig. 7).<sup>29</sup> Since the restorations of the apse had not yet begun, Fig. 7 includes both the chrismon in the medallion at the crown of the apse vault and the symmetrical frontal perspective of the Virgin's footstool. A later work, published by C. Errard and A. Gayet in 1901–03, has reproductions of watercolor drawings of the mosaics; these predate the restoration, since they were based on site work carried out in 1876–77.<sup>30</sup> The drawings agree with the earlier engravings concerning the shape of the Virgin's footstool. However, in the drawing of the mosaics on the central pier between the windows of the apse it may be noted that the angel's tunic has only one vertical stripe, or clavus (Fig. 8),<sup>31</sup> whereas today it has two, one above each foot (Fig. 9). None of the other pre-restoration engravings shows the angel suf-

ficiently clearly for this detail to be checked, but our visual analysis indicates that this area was indeed restored. However, it can be observed once again that Errard (who executed the drawings) took some liberties in his recording; for example, in the plate showing a detail of the Virgin, the angels on either side of the throne are omitted.<sup>32</sup>

The discrepancies between the various pre-restoration records, both written and visual, raise the problem of their trustworthiness as sources. Many of the drawings were finished in studios, after visits to the site, and even the more meticulous of the recorders made mistakes. The problem was evidently compounded by the condition of the mosaics themselves, which must have been blackened by dirt and candle smoke.<sup>33</sup> In addition, the mosaics were apparently patched with painted plaster, as revealed by T. G. Jackson, in his book of 1887: "The mosaics are a good deal patched with painted and gilt plaster in different places, but on the whole they are extremely well preserved, and have at all events hitherto escaped the misfortune of restoration."<sup>34</sup> Jackson also noted that the chrismon at the apex of the apse was entirely in plaster: "At the crown of the arch within a circle is the monogram [of Christ], though now only in painted plaster, the mosaic having perished."<sup>35</sup> Jackson's description of the figure on the right hand pier between the windows, presently portrayed in the guise of John the Baptist (Fig. 6), is especially significant: "...very



Fig. 8. Watercolor of Standing Angel (central pier) from Errard & Gayet, 1876–77

little remains of the original mosaic, the figure being made up with painted plaster; it seems to have had a white dress and to have held a cross staff." Like von Eitelberger and Lohde, Jackson identified the saint as John the Baptist, but tentatively. In addition, he evidently had some difficulty making out the left hand figure, now characterized as Zacharias (Fig. 32); he described this personage as a "saint in a short tunic richly ornamented and fringed, with a gold purse(?) hanging in front, and wearing a purple cloak fastened at the throat with a large clasp: he holds a casket with a coped top." Thus both from Lohde's and Jackson's publications we can conclude that nineteenth-century observers had trouble reading this mosaic. Like Lohde, Jackson suggested that the figure may have represented Maurus.<sup>36</sup>

Only one pre-restoration photograph of the apse was published, in 1896 (Fig. 10).<sup>37</sup> A photograph might be thought to give the most useful and incontrovertible evidence of the pre-restoration state of the mosaics, but here too there are problems of interpretation. Because of the blackening of the mosaics, the curvature of the apse, and the presence of the ciborium which impedes the view of the mosaics on the lower wall, the photograph gives only limited information. But it does clearly show that the Virgin's footstool appeared in a symmetrical frontal perspective, as in all the earlier engraved views. It also records a chrismon at the crown of the vault instead of the modern lamb, and, so far as the grainy quality of the reproduction allows a judgement, it suggests that the tunic of the angel on the central



Fig. 9. Standing Angel (central pier)

pier had one clavus stripe rather than two. A surprising feature of the photograph is that it is extremely hard, if not impossible, to see the hand holding the wreath above the Virgin's head, while the pattern of clouds in the upper part of the mosaic appears to be different from that seen today. The hand with the wreath is a feature that appears clearly in all of the earlier published prints, except perhaps for the engraving in *Die Österreichisch-ungarische Monarchie* (Fig. 7), where it is also hard to make out the motif. The hand and wreath were also described in the texts by von Eitelberger, Lohde, and Jackson.<sup>38</sup> Perhaps an explanation is to be sought in the poor quality of the photograph, or else in the overpainted and blackened condition of the mosaic itself.

In summary, these pre-restoration sources have to be used with caution, because a variety of factors makes their interpretation difficult. Three major conclusions can, however be drawn from our survey: First, the motif at the crown of the apse was changed by the restorers from a chrismon to a lamb; second, the shape of the Virgin's footstool was also altered; and third, the recording of the figures between the windows was confused, and in some respects at variance with what is seen today, whether because they were patched with painted plaster, or perhaps because they were hidden behind the ciborium, or because the restorers made significant alterations. The first of these discrepancies is known to us from the documentary record of the restorations; the resetting of the medallion at the apex of the apse



Fig. 10. Pre-restoration Photograph from Marucchi

sparked an acrimonious controversy between Paolo Deperis, who claimed that traces of a lamb with a cruciform nimbus survived beneath the plaster painted with the monogram, and Giacomo Boni, who maintained that the lamb was an invention of the restorers.<sup>39</sup> But concerning the Virgin's throne and the figures between the windows, we have not to date found any specific documentation from the restorations. Therefore, our best evidence for the extent of the restorers' contribution to these areas of mosaic will come from a close visual analysis of the tesserae themselves.

#### VISUAL ANALYSIS

Our visual examination of the mosaics was intended to fill these gaps in the documentary record, as well as to study the fabric of the mosaics. Our scaffolding facilitated the examination of the mosaic surface at very close range. Given the brevity of the time available for our fieldwork (June 14-28) and the limited height of our scaffolding, we decided to concentrate our study on the mosaics of the lower apse, up to and including the lower border of the inscription (the springing of the vault).<sup>40</sup> We hope at a later date to extend our investigation to the upper parts of the apse vault, the triumphal arch and the side apses.

We began with a general survey of the surface of the mosaics. Following that, guided by our initial responses to the mosaics, as well as by information from the documents and

engravings, we made detailed tesserae-by-tesserae studies of some 30 smaller areas distributed throughout the mosaics of the lower apse, which we referred to as sondages (see appendix). The sondages, which measured, on average, 25 x 40 cm each in extent, involved a detailed examination of the tesserae, setting bed and setting technique. For each color of tesserae, we recorded its material, condition, surface evenness, porosity, and minimum/maximum dimensions. For each type of setting bed we looked at its color, material, condition and degree of completeness. For setting techniques we gauged surface evenness, closeness of spacing, regularity, pattern(s) and the projection of the tesserae above the bed. Additionally, we photographed each, digitally and with still film.

*Phases.* From these sondages, we have been able to characterize at least three separate phases of mosaics: the original work of the 6th century, Neuhauser's restoration of 1886; and Bornia's restoration of 1890-1900. We will offer a summary of the general characteristics of each phase, followed by a more detailed discussion of particular phases, features and techniques.

First, the original work of the 6th century has a palette of over fifty hues of tesserae set, generally, into a grayish-white setting bed. Most of the tesserae are glass, but the original mosaicists also used cubes of marble, limestone and brick. The cutting and setting of the tesserae is marked by a high degree of irregularity.

Second, we believe we have identified a patch of the trial restoration by Solerti from the Neuhauser Mosaic Firm, in



Fig. 11. Border under Visitation, detail



Fig. 12. Border under Annunciation, detail

the scene of the Annunciation. His work is characterized by the use of a number of colors of glass tesserae, as many as nine, which we have not yet found elsewhere in the mosaics. In particular, Solerti used an exotic range of greens set very closely together.

Third, the principal phase of 19th century restoration, that associated with Bornia, typically used a pinkish setting bed with very regularly set tesserae. He employed a palette of over 30 colors, many of which duplicated, or attempted to duplicate, the colors used by the original mosaicists, including tesserae made of stone and brick. Bornia's palette is less rich than that of the original 6th century mosaicist, which is to be expected from 19th century restorations of mosaics.

We have chosen, in our more detailed analysis, to concentrate first on the characteristics which both define the original 6th century mosaic work and that of Bornia's restoration, and differentiate between them. In essence, the vast majority of the mosaics we examined were either original or demonstrated some intervention by Bornia. The Solerti restoration was limited to one area, and, since his and Bornia's work were from the same period, they share a number of features in common. A description of Neuhäuser's work will follow our discussion of the original work and Bornia's restoration.

*Tesserae.* For purposes of analysis, we discuss tesserae and their setting (mortar bed and setting technique) separately, but that division, of course, is artificial. In point of fact, it is the combination of these factors, together with the overall fabric of the mosaic and issues of design, that ultimately permit an attribution of date or workshop.

To begin with the tesserae themselves: The original tesserae are often irregular in shape, rather than square or quadrangular, with markedly uneven surfaces. They are high in porosity and are frequently, as one would expect, quite worn. Color can also be a good arbiter. The old glass tesserae have a impressive variation in hue, lending them great visual richness. We found this to be true even within one cube, as a hue can vary from one spot of the tessera to another, but it is especially true when one examines groups of tesserae of the "same" color.<sup>41</sup> The new tesserae, by contrast, tend to be highly regular in shape, with the cuts that define the sides of the cubes crisp and clean. Their surfaces are often flat and even, their porosity is lower, and they do not appear worn. In color, the newer tesserae are more homogenous, both with respect to a single tessera and to a group of tesserae. It is important to assess all of these factors simultaneously, as

in some instances old tesserae are extremely well preserved, and relatively regular in appearance, while the newer tesserae can occasionally have a high porosity and vary in color.

Several examples will help make these differences apparent. The first two, Figs. 11-12, come from the red jeweled borders ubiquitous in mosaics of the early Byzantine period. Fig. 11 represents a section of the jeweled band beneath the scene of the Visitation. The jeweled bands consist of alternating rectilinear and oval "jewels," linked by a single line of obliquely placed gold tesserae. The spaces between the jewels are punctuated by discs of white marble or stone that appear above and below the line of gold tesserae. In Fig. 11, nearly all of the tesserae in the red jeweled band to the left of the white discs are old, while nearly all to those to the right are new. The old red cubes are irregular in shape, have uneven surfaces, and display a considerable variety in terms of hue. The new red, on the other hand, are more evenly cut, have crisper edges and have less variety in hue. The distinction between the "purple" tesserae is similar, although, because this color is more subtle and the tesserae less absolutely opaque, we must look a bit more closely. Here again, most of the purple tesserae to the left of the discs are old, most of those to the right are new. The "purple," used to line the edges of the red band, and particularly in this section of the jeweled band, to outline the jewels and discs, is actually a taupe-purple. Sometimes, the more translucent among the original tesserae look like a cloudy and dark amethyst. This was a color that was apparently difficult to match. The original cubes vary enormously in shade, some appearing more brown and others more purple, and also in the degree of translucency from one part of the tessera to another.<sup>42</sup> But the new tesserae are far more even in color, appearing a flat light brown more than purple, and very consistently semi-opaque. This difference is most visible in Fig. 13, a detail from the scene of the Visitation. The line of tesserae at the far right of the photograph are the original purple. The taupe colored tesserae that form the horizontal band in the column as well as the line that runs along the base of the scene are meant to duplicate that purple color.

Fig. 12, a detail from the band beneath the Annunciation, offers an opportunity to see old and new tesserae used in a different relationship. The 4 rows of red tesserae above the rectilinear jewel represent, apparently purposefully, a mixture of old and new tesserae. Both types of tesserae are red streaked with light and dark. In the case of the new tesserae, which, with their relatively flat surfaces, appear





Fig. 13. *The Visitation, detail of house*



Fig. 14. *South Intrados of Apse, detail of Acanthus Cup and Border*



Fig. 15. *Border under Visitation, detail*

consistent in color in the photograph, the basic red is streaked with a lighter, orange red, as well as with a darker red. The streaks create strong linear patterns. In the original red tesserae, which, because of their uneven surface, are more difficult to read visually, the predominant value of red is darker, and the streaks less linear. The emerald green used in the jewel itself also makes an instructive contrast. The line of small and rectangular tesserae defining the outer edge of the green jewel are new, consistent in color and evenly cut. The line of old green tesserae directly below them, appearing lighter in color, are quite worn, unevenly cut and vary more in hue.<sup>43</sup>

A final example gives a more general view of the differences in the range of colors used in new as opposed to the old tesserae. Fig. 14 depicts the base of the south intrados, with its white and teal blue border, and, beneath that, a section of the same red jeweled border seen in Fig. 11. Fig. 14 illustrates, at a glance, the differences between new and old tesserae in a number of colors, especially the dark blue and teal blue above the jeweled band, and the red tesserae. The line dividing new and old runs vertically above and below the white discs, and then a bit to the right of that in the areas of teal and dark blue (both above the jeweled band). The old part of the mosaic incorporates a much greater range of shades in all three colors, while the restored sections display a relatively high degree of homogeneity in color.

*Setting Bed and Setting Technique.* We will look at the setting beds and techniques as a unison, since they are intimately linked. Overall, it is more difficult to differentiate

between new and old settings than between new and old tesserae. The hallmark of Bornia's restoration, as we mentioned, is a pinkish setting bed and a highly regular setting technique, and when this occurs in an area of some size, it can be easily distinguished from the original work. But, for several reasons, one finds relatively few instances of such a clear distinction in these mosaics. First, mortar is notoriously difficult to assess, both because its make up changed little over time, and because the same mosaicist might mix up different looking batches on successive days. Hence, the color of a setting bed, of and by itself, can prove treacherous in establishing a date or workshop. Second, Bornia's restoration used a great deal of small scale patching and repair, often placing a few original tesserae into an essentially old bed. Third, in such small patches, the great regularity of setting that generally characterizes Bornia's work does not necessarily appear, because he was accommodating his style to the existing sixth century work. Those complications notwithstanding, we can establish the general features of the two primary settings, that of the original mosaicists, and Bornia's characteristic pinkish setting.

*Original Setting.* Areas with entirely original settings are fairly easy to recognize, but they tend to survive in small patches, rather than in broad swaths of tesserae. Nor are they all in equal states of preservation. The original setting bed has a grey or greyish white mortar (perhaps having accumulated dirt over time). In areas where we could see enough of this mortar, it often had inclusions, particularly of a white substance, and it appeared lumpy in consistency.<sup>44</sup> The original setting bed varies in terms of condition, but most of it is considerably worn. The setting technique, at least as it appears after its millennium and a half of wear, is markedly irregular. It varies in height, giving the mosaic fabric a pronounced rippling surface, and the tesserae themselves project well above the surface of the mortar. The tesserae are spaced at irregular intervals, and often set askew, or at slight angles to one another, which, together with the odd shapes of many original tesserae, can create a jumbled appearance. Many of these features can be seen in Fig. 11, in the left side of the jeweled band. The right side, by contrast, together with the entire blue border underneath the red band (4 horizontal rows of tesserae), is highly regular. One can also see, particularly in the greens making up the rectangular jewel, how the tesserae project a good deal above the level of the setting bed.

The color and texture of the original setting bed, as well as the irregularity in setting, can be seen in Fig. 15, part of



Fig. 16. Border under Standing Angel (central pier), detail



Fig. 17. Border under Standing Angel (central pier), detail



Fig. 18. Border under Standing Angel (central pier), detail

the red jeweled border under the Visitation. The center of the jewel (the two light blues) retains the original setting bed. It is grayish-white in color (although the color varies from spot to spot), it appears worn, and the tesserae project from the surface. The sides of the tesserae do not line up with one another evenly, and the oval form they create is, itself, distorted.<sup>45</sup>

**Bornia Setting.** Of the settings associated with Bornia, that with a pinkish color mortar is the most prominent, both in its visual appearance and in its occurrence in the mosaics.<sup>46</sup> We found evidence of this setting in many of our sondages. The bed itself is generally well preserved, with a relatively fine consistency, and can sometimes be seen to have minute inclusions of red particles. When Bornia employed substantially new tesserae in this setting bed, the setting technique evidences extreme regularity, with equally-sized tesserae spaced consistently, in even rows, their sides parallel.

We offer several examples of Bornia's typical setting, which we will then contrast with the original setting. Figs. 16-18 illustrate details of the gold jeweled band running beneath the standing angel on the central window pier. The entire border under the angel is substantially a product of restoration. Fig. 16 shows the far north side of the border; Figs. 17-18 serve as details of the south end of the border. The trademark pink of Bornia's setting is most apparent in Figs. 16 and 18. All three photographs demonstrate the constancy of setting technique, with the neatly cut cubes placed at uniform intervals. The evenness of the setting bed, which



Fig. 19. St. John the Baptist (south pier), lower half of figure

lies nearly flush with the surfaces of the tesserae, can be seen best in Fig. 18. The bright, flat finish typical of new gold tesserae is most visible in Fig. 17.

The application of Bornia's settings to a larger area may be seen in Fig. 19, a detail of John the Baptist, on the south window pier. Large areas of this figure, as well as the gold band underneath and along both sides of it, were heavily restored by Bornia, perhaps because the original mosaic had already been replaced by painted plaster, as Jackson's description suggests. The general "look" of Bornia's work



Fig. 20. Border above Annunciation, detail



Fig. 22. The Annunciation, detail (Photo: Andreescu-Treadgold)

may be seen easily in the lower gold band, as well as the feet and tunic of the saint, and in several rows of tesserae around the feet. In these sections, the tesserae are set regularly and even with the surface, whose lighter color helps to create a dotted line effect. The vertical bands of colors in the tunic accentuate the rhythmic regularity of the setting.

We may look at two further comparisons of Bornia's restoration with similar substantially unrestored areas. Here again, the distinction is clear. In Fig. 20, a segment of



Fig. 21. Standing Angel (central pier), lower left corner

gold band above the Annunciation, the left half is mainly original while the right half is primarily new. The uneven surface and setting on the left abruptly becomes smooth and consistent to the right. With the possible exception of the 6 green tesserae in the center of the square jewel, all the tesserae on the right are new, precisely sized and cut. The tesserae, particularly those from the two black discs in the center to the end of the square jewel, are set in even rows, including those gold tesserae set obliquely to either side of the black tesserae. This unyielding consistency breaks down a bit near the "black" discs (on the absence of real black tesserae in the original mosaics, see below, p. 214) at the right side of the photograph, some of which are original tesserae in original beds. To see how these different methods affect less geometric designs, compare the foot of John the Baptist (Fig. 19) with a detail of the foot of the standing angel (Fig. 21). The foot of the angel is primarily original, although the green background is heavily patched, and a strip of several rows of tesserae beneath the long strap of the sandal was repaired by Bornia. While Bornia, aiming at authenticity, copied details such as a line of red tesserae to define the upper edge of the foot and toenails, the precision and "newness" of John's foot is unmistakable.

In addition to the hallmark pinkish setting bed, Bornia's restoration also made use of a thick white mortar, sometimes applying it to a relatively large area, such as blue border that runs along the right side of the Visitation (Fig. 13). The three vertical rows of dark blue glass, slate grey stone,



Fig. 23. *The Annunciation, Foot of Gabriel, detail*



Fig. 24. *The Annunciation, Border near Foot of Gabriel, detail*

and white marble are mostly original tesserae, but their setting bed belongs to Bornia's restoration.<sup>47</sup> This whiter setting bed (in some places it appears a very pale pink), in all likelihood, represents a different season or year of work.

*Neuhauser Restoration.* Throughout this paper, in assessing the originality of the mosaics and the methods of the restorers, we have needed to rely mainly on our visual examination, rather than on the restoration documents. Except for the gold tesserae, which will be discussed below, the telling details we can see in the mosaics are usually absent from the documentary record. But in defining the Neuhauser restoration, one must use both. Our primary information comes from the documents, which confirm that Neuhauser's firm restored 12.8 sq m of the Annunciation (Fig. 22). A mosaicist named Solerti actually carried out the restoration. This restoration, though initially considered a success, soon fell into disfavor.<sup>48</sup> The documents also indicate that some of the same areas were subsequently reworked by Bornia. Thus we are forewarned about the complexity of this part of the mosaics. Nevertheless, in examining the Annunciation, we found one segment in particular that we believe may be attributed to Neuhauser, as it is clearly not original, and it is unlike the work of Bornia elsewhere in the apse. Figs. 23-25 offer details of the foot of the Angel Gabriel. The foot itself, as well as the green background beneath it and to its left, exhibit several features that are distinct. First, as mentioned above, we found a large percentage of colors of tesserae (up to nine) that we found nowhere else in the mosaics. Second, many of the new tesserae tend to be cut into long rectangular shapes. When grouped tightly together, the setting mimics the look of brickwork. This is particularly evident in the mint green and lime green tesserae at the base of the scene, but can also be seen in the light rose colored cubes used in the foot (Figs. 24-25). Third, the tesserae are set together very closely, so that one generally sees little if any of the setting bed (Figs. 24-25). Bornia's restoration, by contrast, tended to cut cubes in squares, and spaced them so that some of the setting bed was visible (Figs. 16, 19). The documents indicate that the type of gold tesserae used by the Neuhauser Firm was an issue, and it is clear from a visual examination that these tesserae were replaced by Bornia. The gold tesserae in the Virgin Mary's halo, dress and footstool for example, are definitely from Bornia's restoration, as the tesserae are identical to the new gold used throughout the mosaics (Figs. 26-27).

*General Methods of the Bornia Restoration.* The remainder of our report turns again to a comparison of the origi-

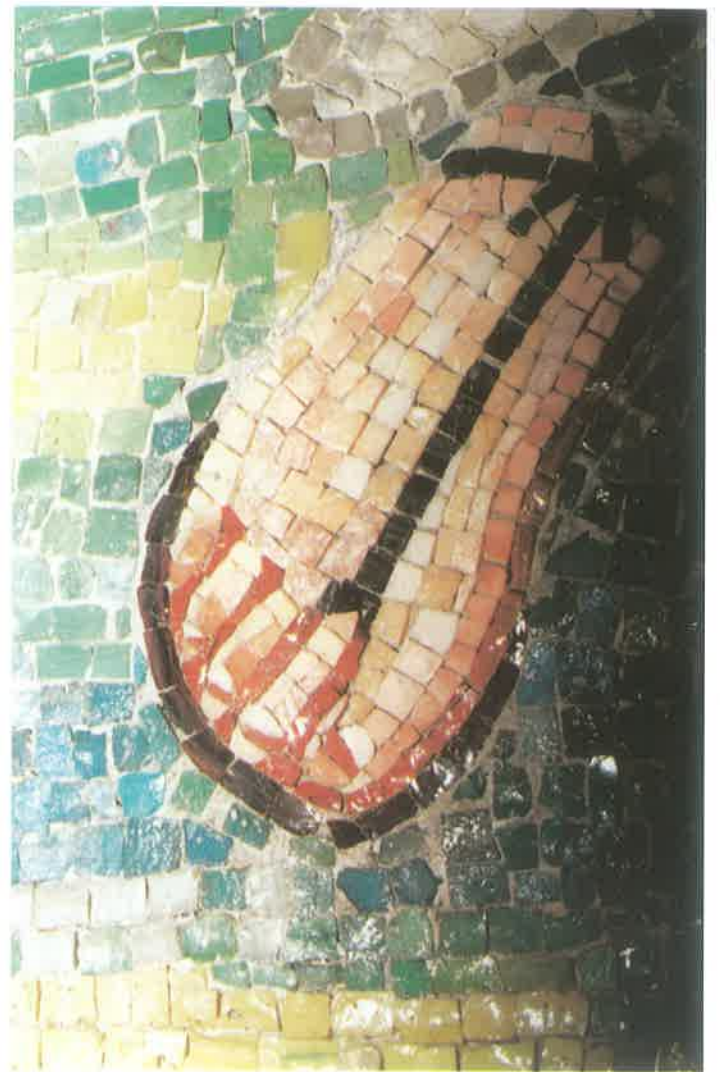


Fig. 25. *The Annunciation, Foot of Gabriel, detail*

nal mosaics and Bornia's restoration, and considers the restorer's general methods of work or what might be called his approach to restoration. His characteristic setting, that we have just described above, while it appears throughout the mosaics, is far from the only method he used. Bornia typically used the pink setting bed with crisply cut new tesserae only in areas that were being substantially restored and remade. In point of fact, most of the interventions by Bornia were minor, in the way of repairs and patching. We



Fig. 26. *The Annunciation, Basket of Yarn and Footstool of Throne, detail*

may confirm here what we read in the restoration documents, which specified that nearly every section of the mosaics needed some repair (1893-D#16396/ccd). In examining these mosaics we were repeatedly struck by the degree to which his restoration sought to preserve original tesserae and settings, looking usually to integrate areas of new tesserae or setting with the old. Thus we found that the most consistent and common trademark of Bornia was patching and repair, rather than the visually distinctive pinkish setting associated with wholesale replacement. These interventions take on a number of forms, as the following series of examples is meant to illustrate.

Areas of repair, even if they utilize many new tesserae, lack the systematic and uniform appearance of the more heavily restored areas we have seen. Fig. 28, a detail from the standing angel, illustrates just such a case. The far left edge of the photograph shows part of a gold jeweled band, with dark colored tesserae from an oval jewel.<sup>49</sup> The straight lines of tesserae (from the left: white, slate grey, dark blue, white) comprise the border around the figure, while the emerald green (3 rows) and lime green (3-4 rows) tesserae form part of the background of the figure. The left two thirds of the photograph are heavily restored, with Bornia's pinkish setting. In particular, the black and gold tesserae are all new. It consequently appears highly regular. The edge of the foot, at the right side of the photograph, is substantially original, and its tesserae have a notably jumbled appearance. The vertical rows of tesserae in the center, par-



Fig. 27. *The Annunciation, Footstool of Throne, detail*



Fig. 28. *Standing Angel's Foot (central pier), detail*

ticularly the green, offer a transition, in which Bornia used some new and some old tesserae. The pink setting bed used here, its surface flush with the tops of the tesserae, tells us instantly that this is restoration, but note that, on account of the greater irregularity in the sizes and shapes of the tesserae, the setting technique is less regular than the areas which were nearly entirely reset.

Figs. 16-18, details from the gold jeweled band beneath the standing angel, represent an exceptionally well executed



Fig. 29. *St. Filicita*s, Collar, detail



Fig. 30. *St. Filicita*s, Collar, detail



Fig. 31. *Zacharias* (north pier), lower left corner



Fig. 32. *Zacharias* (north pier)

combination of new and old tesserae. The gold tesserae are almost all new, as one can see from their even sizing and their brilliant and flat mirror finish. But the other tesserae are a careful mixture of new and old. A number of what appear to be black tesserae are actually very dark blue, original tesserae, as seen best in Fig. 18. The inner center of the jewel (Fig. 18), three milky-blue tesserae surrounded by a ring of pale green tesserae, uses all original tesserae, probably in a partly original setting.

Equal care marks the collar of *St. Filicita*s, one of the female saints in the intrados. The lavish collar at the neck of her tunic consists of 8 rectangular jewels (Figs. 29-30). A close look reveals that the first and third jewel (top row, counting from the left) are significantly original. In each case, one or two green or turquoise tesserae are surrounded by rows of dark blue and then gold tesserae. In these two jewels, we can see the irregular shapes of the old tesserae, as well as the sparsely preserved setting bed (Fig. 30). In addition, much of the background of the collar, consisting of purple and off white tesserae, is original. But the remaining jewels, the second and fourth in the top row, and all in the bottom row, have new centers, as demonstrated by their new gold tesserae, thick, full setting bed, and relatively even settings.

Fig. 31, the area around the foot of *Zacharias*, which preserves several different approaches, is probably most typical of the mosaics overall. The foot and the borders to the side and below it are substantially restored, although,

except for the gold, using many original tesserae. The green background to the left of the foot combines large patches of repair using predominantly new tesserae with smaller areas of original mosaic. Thus the fabric of the mosaic in this area appears disjointed. The green background directly underneath the foot is substantially original mosaic.

Elsewhere, it would appear that the restorers were sensitive to details of imagery, particularly those with icono-



Fig. 33. Censer of Zacharias



Fig. 35. Box of Zacharias



Fig. 34. Censer of Zacharias, detail of Flames and Chains

graphical significance. Again, Zacharias on the north window pier offers several examples (Fig. 32). As we have seen, this figure seems to have been sufficiently damaged that nineteenth century viewers had trouble recording it. Consequently, overall, it required quite a bit of intervention. Nevertheless, our initial analysis of Zacharias indicates that though some areas are newly set with new tesserae (the halo) and others newly set with old tesserae (parts of the

cape), several key details, such as the censer in his right hand, and the box in his left hand, and the tip of his beard remain in their original state. Figs. 33-34, details of the censer, make this clear. The evenly placed rows of off white and light green tesserae in Fig. 33 form part of Zacharias' tunic. Though predominantly old tesserae, they are reset by the restorers. The censer itself, by contrast, is largely original. It is outlined in dark and light blue tesserae, some of which appear reset. The three figures in the center are executed in tiny original tesserae which are preserved intact. Fig. 34, a detail of the chain and flames of the censor, has the disheveled look of an area that is partly original, with a few small patches. In particular, the right of the three red flames, whose tesserae lie evenly in reset mortar, has been reset.

A similar approach marks the box carried by Zacharias (Figs. 32, 35, 42). The golden box is rectilinear, its gabled roof encrusted with gems. An orant figure decorates the front of the box, towards whom, it would appear, the two figures on the long side of the box hasten. Because of the angle of the photograph, the three figures stand out well in Fig. 32. Fig. 35, a close detail, reveals that the figures themselves are almost all original, using very small, irregularly formed tesserae mainly of an amber colored translucent glass (hereafter amber glass; see below, p. 216). One can see the difference between the reset and original areas especially well on the front of the box. The central orant figure uses very small irregularly shaped tesserae of the amber glass; a number of larger, more quadrangular tesserae of amber and yellow-brown glass define the edges of the box itself. Directly flanking the figure to either side, Bornia inserted patches consisting both of old and new gold tesserae. The patches reveal the level setting of fresh plaster (in this case more white than pink). The new gold tesserae are distinguished by their flat and golden surfaces. Most of the old gold tesserae have lost the upper layer of glass, along with part of the gold leaf.

Similarly, we can confirm the originality of Zacharias' beard, because Bornia preserved a very small area of entirely original tesserae amid a larger area of reset tesserae. In Fig. 36, depicting the left side of Zacharias' face, the milky blue and medium blue tesserae at the tip of the beard lie in their original setting, the bed of the medium blue slightly touched up with new plaster.

*Materials.* We append here a few additional notes about glass cubes: (1) Few of the ancient colors of glass were ei-

ther completely opaque or translucent. Most of the glass colors were semi-opaque. Only one color was truly translucent, and that is the amber glass (see below, p. 216). (2) We found very few true black tesserae among the original cubes. The 6th century mosaicists used very dark greens, blues and browns, and some black streaked with other colors to create the appearance of black.<sup>50</sup> (3) White glass was also rare among the sixth century tesserae. Some of the faces used shiny white marble tesserae, which we saw in the figures of St. Filicita and the standing angel. Fig. 37 offers a rare example of the use of white glass. In this detail of the angel's face, a line of white glass cubes runs around the eyes and down the center of the angel's nose. The mosaicists of both periods had an assortment of substitutes in white and off white limestones. (4) Finally, some of the original glass tesserae may have been made of the same, or quite similar, materials as the glass in the *opus sectile* that lines the apse.<sup>51</sup> This observed in the following colors: lime green, orange, mustard yellow, dark green, medium green, and teal or turquoise blue. Not only were the hues (and their variations) similar, the texture and porosity matched as well. Only a materials analysis would tell whether the same glasses were used in each.

The original mosaicists also apparently had a bountiful supply of stone and marble tesserae, including several white marbles,<sup>52</sup> a slate grey stone, white limestone, grey limestone, red terracotta, pale red terracotta, yellow terracotta, a rose-colored stone, and a mottled pink stone.<sup>53</sup>

Finally, it is worthy of mention that in most cases, the restorers introduced equivalent materials, both in glass and stone, to try to mimic the originals, for example, in the "purple" discussed above (p. 206). More often than not, we noted, in recording new colors and types of tesserae, equivalent materials side by side, new and old. Sometimes we saw a marked difference between them, as with the gold tesserae. But in many cases the differences were sufficiently minor that an assessment required a close look at the evenness and condition of the tesserae.

*Gold Tesserae.* The question of gold tesserae deserves special note. The mosaics at Poreč are emphatically golden in appearance. This is partially attributable to design on the part of the original mosaicists, as great expanses of background were lavished with gold (the semidome, triumphal arch, jeweled bands, etc). Gold was also used liberally in garments, halos, and features such as the scallop shells. But the golden spell the mosaics cast over visitors today is also a modern phenomenon, as the great majority of gold tesserae which overwhelm us with brilliant reflections are from the 19th century. We begin this consideration of gold tesserae by identifying the original and the new tesserae, and examining their differences. We will then consider several questions regarding the use of gold tesserae both in the original and restored mosaics. At Poreč, the original gold tesserae that we examined used a base made from a highly translucent dark amber colored glass.<sup>54</sup> A layer of gold leaf was placed on the upper surfaces of the amber, and above that, a very thin layer of translucent glass. The shapes, surfaces and settings of the old gold tesserae are as irregular as any other areas of original work. Typically, about half the gold surface is missing from an original tessera. In Fig. 20, a segment of gold jeweled border, the left side preserves mainly old gold tesserae.

We learn from the documents that these old gold tesserae presented restorers with their single worst dilemma.<sup>55</sup>

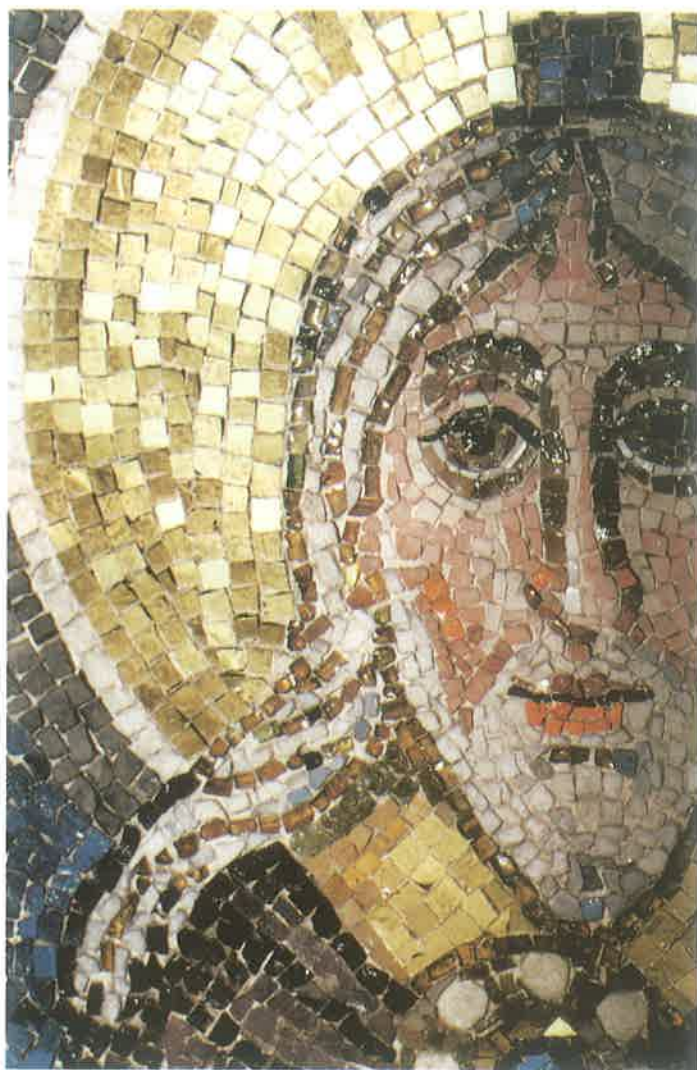


Fig. 36. Zacharias, Face and Halo

All other colors of tesserae, once they had been cleaned, reassumed brightness and clarity of color. But the gold, having shed their thin upper layers of translucent glass and gold leaf to reveal the amber glass, appeared a brownish color. This problem occasioned the only time in the documentary record, at least as it is preserved, that Bornia emerged with a strong opinion, despite considerable resistance from officials. Some restoration officials wanted to replace all the old gold with new gold tesserae. Bornia was alarmed at that idea, since many of the old gold tesserae were firmly implanted in their setting beds. He warned that their removal would threaten the entire fabric of the mosaics. The solution adopted, according to the documents, was to layer these old damaged gold tesserae with double gold leaf and then cover them with varnish. Once the varnish was applied, the gold foil would drip into the joints, and thus each tessera would maintain its distinction of form.

This technique was apparently used, as we have found traces of this process in bits of gold clinging to the edges of adjoining white stone cubes. In Fig. 13, a detail of the Visitation, edges streaked with gold can be seen along the two rows of white tesserae that flank the vertical row of amber tesserae. In the photograph, this appears as a brownish edging. But we are uncertain to what extent the varnish technique was applied.<sup>56</sup>

A second solution was to reset old gold tesserae that were in fairly good condition. We noticed this resetting only





Fig. 37. *Standing Angel (central pier), Face and Halo*



Fig. 38. *The Annunciation, lower half of Virgin*

in isolated instances. For example, at least some old gold tesserae were used together with new gold tesserae in Fig. 35, as the “background” to the orant figure on the box of Zacharias.

The third solution, used extensively, was to manufacture new gold tesserae. This was presumably adopted, at the least, where the old gold tesserae had been lost. The new gold tesserae are, like other new tesserae, quite regular in shape (Figs. 18, 20). Most prominently, as we have noted, they exhibit extremely bright, consistent and mirror-like finishes, as seen best in the reflections from the gold cubes in Fig. 27, a detail from the Annunciation. The surfaces of the tesserae are absolutely flat, and completely opaque. The variation in coloring of the gold that can be seen in Fig. 18 and elsewhere results, we think, when moisture penetrates the thin upper layer of clear glass.

The new gold tesserae were made using at least two different glasses as a base: a transparent, colorless glass, and a highly transparent but very bright emerald green glass. Gold leaf was laid on the top surface, and then a very thin layer of clear glass was placed on top of the gold leaf. A cube of clear glass may be seen in Fig. 12, at the center of the top row of gold tesserae. The green glass is visible in Fig. 39, a detail of the dress of St. Filicitas, in three cubes which have lost their top layer of gold leaf, thus appearing as green. One cube is at the top center, the other two are just to the right of the center of the photograph. One can



Fig. 39. *St. Filicitas, detail of Dress*

also see the exposed sides of the green glass in some examples which retain their gold surfaces. The type of base used for new gold cubes is not necessarily an indicator of phase or date, as we found examples of both used together in several places.<sup>57</sup>

The entire footstool of the Virgin’s throne, with the exception of its jeweled base, has been replaced with these new gold cubes (Fig. 27; The dark shadow in the photo-



Fig. 40. *St. Filicita, left half Face, Halo and Medallion*

graph is from a pole of the scaffolding). Often the new gold tesserae are used almost exclusively in limited areas, especially in halos (Figs. 32, 36) and in the gold jeweled bands (Figs. 17-20). In other instances, they replace a line of missing gold cubes (Figs. 11-12), or replace individual tesserae (Fig. 30).

It is also worthy of note that Borna, when blanketing an area with new gold tesserae, usually set them consistently at sharply oblique angles. This, as much as their mirror finish, gives them a modern and contrived appearance. This can be seen in some of the new gold halos we examined, and in discreet areas such as the throne in the Annunciation, but never in the jeweled gold bands. This technique is most visible in Fig. 38, where the tipping of the gold used in the two vertical bands on the Virgin's robe, and the footstool of her throne gives those areas a staccato-like, textured effect.<sup>56</sup>

Evaluating the use of old gold tesserae is complicated by the fact that the original mosaicists also made extensive use of amber glass tesserae in their unglazed state. It offered a rare combination of qualities, being both dark in color, but light-generating in terms of its translucency. Based on its careful but widespread application, the amber glass must have been valued as a subtle and suggestive compromise between light and dark, and between the flat color of the otherwise opaque glass cubes, and the variable shimmer of the ubiquitous gold cubes. We offer several examples which indicate the richness and range of its use. Most simply, it could be used literally, to depict objects having a dark honey color. Figs. 26 and 43 illustrate details of the basket of yarn from the Annunciation, which is criss-crossed with rectilinear amber cubes giving it very much the appearance of a basket.<sup>59</sup> Amber glass was also used to line faces and/or facial features, where its versatile features gave artists a unique option. Amber cubes outline the face of Zacharias in Fig. 36, where they also are used with white and milky blue to delineate strands of hair. Similarly, in Fig. 37, delicate lines of small amber tesserae outline the eyes and eyebrows of the angel. Third, amber glass was very frequently used in conjunction with gold, giving a gold on gold appearance, such as in the box held by Zacharias (Fig. 35). The orant figure on the front is set almost entirely in amber glass, while the background around the figure is gold (a combination of new gold and reset old gold). The fact that the orant figure is difficult to see, since

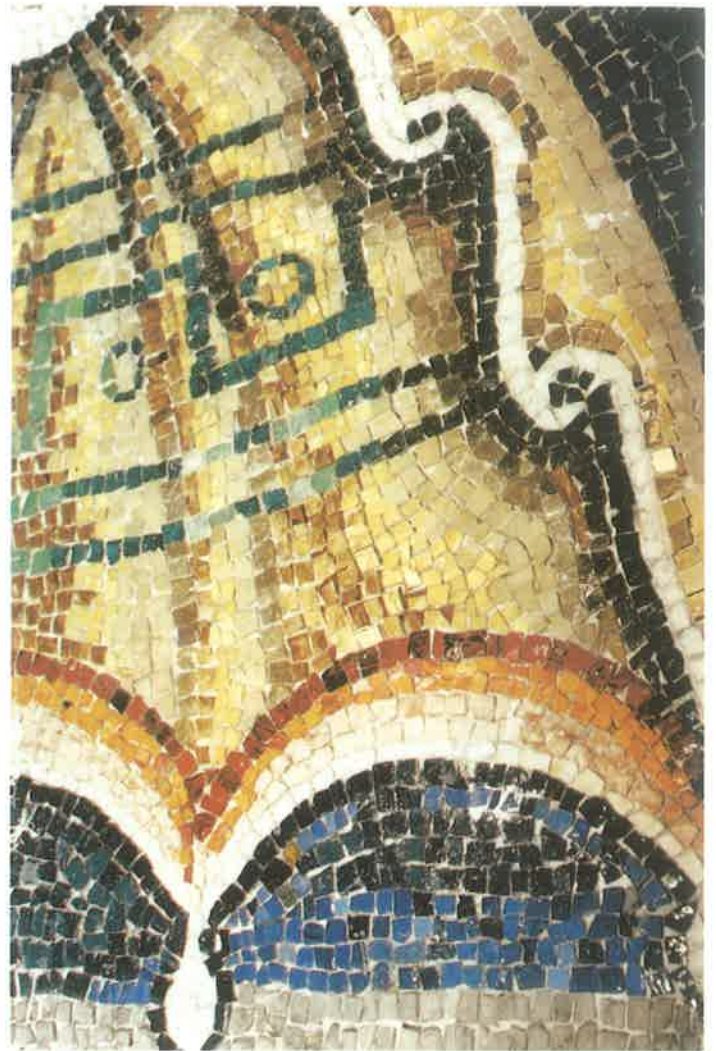


Fig. 41. *Scallop Shell above Annunciation, detail*

the reflection in Fig. 35 renders the gold tesserae themselves as an amber color, illustrates the technique well. On the side of the box, the two figures are done mostly in amber tesserae, while the background, which appears gold in the photograph, is actually set with yellow and tan tesserae.

This last example brings us to our final observation about gold tesserae, one which gives us a chance to touch upon questions of aesthetics and design that appear throughout the mosaics. Having been alerted by the uses of amber glass, we also observed an impressive, resourceful and visually sophisticated blend of gold tesserae with similarly colored cubes, such as yellow, lime green, tan, as well as amber. We have chosen a few examples, all taken from areas where sufficient original tesserae survive to credit the visual techniques to the original mosaicists. Sometimes a color similar to gold was used directly next to gold. Lime green or yellow lime green glass was used in combination with gold, as in the halo of St. Filicita (Fig. 40). Several rows of gold tesserae (here new gold) surrounding her hair were followed by several rows of yellow lime green tesserae, apparently to relieve the boredom, or perhaps spare the expense, of all gold. The yellow lime green blends in so well with the gold that it can take a second look to notice the difference. Obviously, the reflective nature of the gold also ensures that these areas will change in appearance as one moves about the basilica or apse. Elsewhere, mosaicists wove a complex mixture of golden colors, achieving a rip-



Fig. 42. Zacharias (north pier), detail



Fig. 43. The Annunciation, Basket

pling, iridescent shimmer. On the insides of some scallop shells, vertical rows of amber, beige, tan, yellow and gold tesserae fall in cascades of luminescent color (Fig. 41). One can see the same technique in Fig. 39, the gown of St. Filicita. A final example indicates the conscious use of gold-like colors specifically to model the gold, as opposed to the use of coloristic effects for their own value. In Figs. 32 and 42, the lining of the robe of Zacharias, two rows of gold tesserae are softened by a row or more of yellow glass, and then of yellow brick.<sup>60</sup>

*Summary.* In general, it can be said that the restorers were painstaking, especially for their time. In most of the areas we examined, they proceeded by patching rather than by wholesale replacement. Even in those areas that we believe belong to the rejected Neuhauser restoration, in the Annunciation, up to 50% of the tesserae are original, although they were reset. For the most part, the fabric is a careful mixture of new and old, in varying proportions, but with the old generally predominating. Every one of our sondages showed some intervention of the restorers, but often this intervention was minimal. Usually we found that at least 75% of the

cubes were old, sometimes up to 98% (as in the collar of Justina). Even heavily restored areas, such as the window embrasures, where there had been weather damage, may contain over 50% old tesserae. As far as we could see, the iconographical details that we examined are authentic. These include the casket and censer held by Zacharias and the hair shirt of St. John the Baptist, which, even though extensively restored, is original at least in the fur at its top. There may, however, be an element of doubt concerning the left-hand clavus of the angel on the central pier, which is not shown in Errard's drawing, and which is in an area of restoration. Unavoidably, some areas had to be so heavily restored that they are essentially new, especially where there had been extensive patching in plaster, as in the case of St. John the Baptist, and in the case of the gold tesserae, which had deteriorated more than the other colors. Thus the broad areas of gold in haloes, in borders and in furniture, often were completely renewed. It is the visual prominence of this replaced gold that gives to the mosaics their new appearance, and, perhaps, an undeserved reputation for over-restoration.

<sup>1</sup> Research for this project was supported by a grant from the International Research and Exchanges Board, with funds provided by the US Department of State (Title VIII program) and the National Endowment for the Humanities. None of these organizations is responsible for the views expressed. Our project was also funded by grants from the University of Illinois at Urbana-Champaign and Wittenberg University. We are grateful to the ecclesiastical authorities, Bishop Bogetić, bishop of Poreč-Pula, and Reverend Pahović, the pastor at the cathedral, who graciously welcomed our work, despite the disruption and inconvenience of the scaffolding in the apse. We are also grateful to a number of colleagues in Poreč who aided us: Ivan Matejčić, director of the *Zavod za zaštitu spomenika kulture* in Rijeka (the preservation institute responsible for the Eufrasiana, hereafter ZZZSK); Hrvoje Giacconi, director of the office of the ZZZSK in Poreč; Marino Baldini, of the *Zavičajni muzej Poreštine*; and Vladimir Kovačić, *kustos* of the *Zavičajni muzej Poreštine*. Appreciation is due to Tom Muhlstein and Irina Andreescu-Treadgold, who have offered their expertise in a number of aspects of the research, including reading a draft of this article. For help with innumerable practical matters, we owe a great debt to Snježana Matejčić. All of the photographs used in this article, unless otherwise noted, are by the authors.

<sup>2</sup> On the wall mosaics, see the following: J. KASTELIC, "Lo stile e il concetto dei mosaici della basilica eufrasiana a Parenzo," *Atti del V congresso internazionale di archeologia cristiana* (1962), 485-89; J. MAKSIMOVIĆ, "Ikonografija i program mozaika u Poreču," *Zbornik radova*, 8/2 (1964), 246-62; L. MIRKOVIĆ, "Mozaici eufrazijske bazilike u Poreču," *Zbornik narodnog muzeja*, 5 (1967), 195-216; S. TAVANO, "Mosaici parietali in Istria," *Antichità altoadriatiche*, 8 (1975), 252-73; G. CUSCITO and L. GALLI, *Parenzo* (Padova, 1976), 90-94; A. ŠONJE, "Mosaici parietali della basilica eufrasiana a Parenzo," *Atti: Centro di ricerche storiche - Rovigno*, 12 (1982-83), 65-183; and E. Russo, *Sculture del complesso eufrasiano di Parenzo* (Naples, 1991), 288-92. Excellent color photographs of the wall mosaics may be found in M. PRELOG, *Eufrazijska bazilika u Poreču* (Zagreb, 1986).

<sup>3</sup> For assistance with various aspects of the search for and acquisition of microfilms of the documents, we are grateful to a number of individuals in Vienna: Prof. Dr. Helmut Buschhausen, from the University of Vienna; Dr. Eckart Vancsa and Dr. Theodor Brückler from the *Bundesdenkmalamt*; Dr. Helmut Karigl, director of the *Allgemeines Verwaltungsarchiv*, and past director, Prof. Dr. Lorenz Mikoletzky; and Dr. Erhard Busek, *Vizekanzler* of Austria and *Bundesminister für Wissenschaft und Forschung*. Another collection of documents relating to the restorations of the mosaics exists in the Archivio di Stato at Trieste. These have recently been found and published by Gabriella BERNARDI, "I restauri dei mosaici della basilica eufrasiana di Parenzo," *Atti del IV Colloquio dell'Associazione Italiana per lo Studio e la Conservazione del Mosaico*, (Palermo, 9-13 December 1996), Ravenna 1997, 1013-1025. This article reached us too late for consideration in this preliminary report.

<sup>4</sup> The majority of the documents we have seen are from the CCD, but some also survive from the MCU.

<sup>5</sup> A. TERRY and T. MUHLSTEIN, "New Documentary Evidence for the Restoration of the Sixth-Century Wall Mosaics at the Eufrasiana in Poreč: A Preliminary Report," forthcoming in the *ACTA XIII Congressus Internationalis Archaeologiae Christianae*, Split-Poreč, September 25–October 1, 1994.

<sup>6</sup> On the Eufrasiana in general A. TERRY, *The Architecture and Architectural Sculpture of the Sixth-Century Eufrasius Cathedral Complex at Poreč* (Ph.D. dissertation: University of Illinois, 1984); CUSCITO and GALLI, *Parenzo* (Padua, 1976), 73–102; G. BOVINI, *Le antichità cristiane della fascia costiera istriana da Parenzo a Pola*, (Bologna, 1974), 7–112; M. PRELOG, *Poreč: Grad i spomenici* (Belgrade, 1957), 93–120; and B. MOLAJOLI, *La basilica eufrasiana di Parenzo* (Padua, 1943). With regard to aspects of the decorative program other than the mosaics, see: P. CHEVALIER, "L'ambon à Poreč et en Istrie," *Hortus Artium Medievalium*, I (1995), 126–133; RUSSO, *Sculture*; TERRY, "The Sculpture of the Cathedral of Eufrasius in Poreč," *Dumbarton Oaks Papers*, 42 (1988), 13–64; *idem.*, "The *Opus Sectile* in the Eufrasiana at Poreč," *Dumbarton Oaks Papers*, 40 (1986), 147–64.

<sup>7</sup> The mosaics, like the rest of the basilica, received protective coverings during the recent war in Croatia. After the protective measures were removed, in 1994, the mosaics were cleaned.

<sup>8</sup> Paolo Deperis (Parenzo) and Giacomo Boni (Rome) carried out an intense and highly charged debate in a series of articles, which revealed relatively little about the restoration process itself. See: BONI, "Il duomo di Parenzo ed i suoi mosaici," *Archivio storico dell'arte*, 7 (1894), 107–31 and 357–61; P. DEPERIS, "Il duomo di Parenzo ed i suoi mosaici," *Atti e memorie della società istriana di archeologia e storia patria*, 10 (1894), 1–35; "Ancora del duomo di Parenzo e dei suoi mosaici," *Atti e memorie della società istriana di archeologia e storia patria*, 10 (1894), 470–500.

<sup>9</sup> TERRY and MUHLSTEIN, "Documentary Evidence," 3–4. Repercussions from political events and attitudes also permeated the archaeology at the site, a topic assessed in a separate study underway by Ann Terry and Fiona Gilmore Eaves, *Retrieving the Record: A Century of Archaeology at Poreč (1847–1947)*.

<sup>10</sup> In an ongoing project which began in 1991, the documents have been transcribed by Tom Muhlstein. The brief narrative summary included in this study is derived from Terry and Muhlstein, "Documentary Evidence". This current article, as well as that by Terry and Muhlstein, make use of the accumulated CCD documents. Recently, a new series of MCU documents have been acquired, but they have not been fully processed and analyzed, and therefore do not figure in this current preliminary report. A full account of the restoration process will be part of our final report.

<sup>11</sup> This trial restoration has been misunderstood in the literature. Labeled as "Austrian," it has been identified with the external west facade of the building (standing figures and candelabra); see ŠONJE, "Mosaici parietali," 75; BOVINI, *Le antichità*, 43; and TERRY, *Architecture*, 26.

<sup>12</sup> Officials from the MCU had initially sought the Venetian Salvati enterprise; see TERRY & MUHLSTEIN, "Documentary Evidence," 4–5.

<sup>13</sup> *Ibid.*, 8.

<sup>14</sup> *Ibid.*, 6–7, 13–14.

<sup>15</sup> Šonje seemed to have erred when he recorded an earlier, what would be a third "restoration" which he dated to 1937 and attributed to F. FORLATI, "I mosaici parietali," 86 (no source given). See also TERRY, *Architecture*, 26, following Šonje. Further research shows that Forlati had finished his tenure at the cathedral complex in 1935. In 1937, Molajoli, then in charge, effected a restoration of the side apses, but this seems to have involved primarily alteration of older altars and a removal of painted imitation *opus sectile* from the lower surface of the apse walls; see M. MIRABELLA ROBERTI, "Notiziario archeologico 1937–38–39," *AMSI*, L (1938), 236–37; and MOLAJOLI, *La basilica eufrasiana di Parenzo*. Padua, 1943, 52. A photograph of the imitation *opus sectile* may be seen in pl. 36 in TERRY, *Architecture*.

<sup>16</sup> *Notiziario archeologico Istriano 1940–48. Venice, 1949*, 10, n. 1.

<sup>17</sup> ŠONJE, "Mosaici parietali," 84–85, n. 41.

<sup>18</sup> I. PERČIĆ, "Denkmalpflege in Poreč-Parenzo (Istrien)," *Österreichische Zeitschrift für Kunst und Denkmalpflege*, 1–2 (1958), 1–8. Fig. 10 illustrated the struts. Šonje recorded the effect of this work on the wall mosaics; see "I mosaici," 79–80, n. 34. It is unclear how long the process of structural work took, but the struts were probably set up in 1957, and certainly removed by 1961, when the work was pronounced finished. The date of 1961 is indicated by information on uncatalogued lists in the collection of the ZZZSK.

<sup>19</sup> ŠONJE, "I mosaici," 79–80, n. 34, where he also specified that in the winter, after services, when the temperature in the building would change quickly, one could always find a batch of recently fallen tesserae on the floor of the apse. Once the problem was identified, measures were taken to correct it.

<sup>20</sup> ŠONJE, "Mosaici parietali," 85, nn. 34, 41. Two long footnotes in Šonje's article constitute, to our knowledge, the only time this restoration was mentioned in print. Šonje treated the topic parenthetically, either because it was sufficiently minor and recent, or because the subject was sensitive.

<sup>21</sup> We are grateful to Marino Baldini of the *Zavičajni muzej Poreštine* (June 1997) for the following information.

<sup>22</sup> We compared a large selection of photographs which pre-dated 1940 with the mosaics as they now exist, and we had difficulty finding any variation in the patterns and lines of tesserae.

<sup>23</sup> The engraving was included in a study written in 1763 by the Parentine Bishop Gasparo Negri, titled *Della Chiesa di Parenzo*, a text that was never finished. Two chapters of it were found in the episcopal archives in the 19th century, and published (along with the engraving), under the same title, in *AMSI*, 8 (1892), 185–226; see the editor's note, 185–89. The same engraving was published in 1790 by Count Gian Rinaldo Carli, in his *Antichità Italiane*, (Milan), V, 4, Tav. II, 2. Carli deleted a second line of text that had accompanied Negri's engraving, which read: *Cura, et studio Illmi D.D. Gasparis de Nigris Episcopi, nunc primum in lucem editum anno 1763*. The photograph reproduced in Fig. 2 was taken from a copy of Carli's book.

<sup>24</sup> R. VON EITELBERGER, "Die Domkirche zu Parenzo in Istrien," in G. HEIDER, R. VON EITELBERGER, J. HIESER, *Mittelalterliche Kunstdenkmale des Österreichischen Kaiserstaates*, I (Stuttgart, 1858), 95–113, pls. 13–16, esp. pl. 15.

<sup>25</sup> *Ibid.*, 104.

<sup>26</sup> L. LOHDE, "Der Dom von Parenzo in Istrien," *Zeitschrift für Bauwesen*, 9 (1859), 47–74, *Atlas*, pls. 14–17, esp. pls. 15–16.

<sup>27</sup> *Ibid.*, 66.

<sup>28</sup> *Ibid.*, 68.

<sup>29</sup> *Die Österreichisch-ungarische Monarchie in Wort und Bild*, X, *Das Küstenland* (Vienna, 1891), illustration on p. 259. We owe this reference, and the photograph reproduced in Fig. 7, to Professor Janez Orešnik from the University of Ljubljana in Slovenia. While Fig. 7 includes the newly discovered mosaic, it mistakenly depicts the half figures filling the entire panel on the wall above the apse. In reality, the original mosaic depicted full length standing figures, the bottom halves of which had been ruined by a post-medieval molding.

<sup>30</sup> C. ERRARD and A. GAYET, *L'art byzantin, d'après les monuments de l'Istrie et de la Dalmatie*, II (Paris, 1903), 31–37, pls. 1–20, esp. 3, 4, 14, 15, 16.

<sup>31</sup> *Ibid.*, fig. 15.

<sup>32</sup> *Ibid.*, fig. 16.

<sup>33</sup> This condition is suggested by the curious description of the portrait of Eufrasius contained in F. GIAMBATTISTA and M. CONTARINI, *Memorie storiche delle sacre reliquie dei SS. Martiri Mauro, ed Eleuterio* (venice, 1741), 6: *con faccia oscura simile quasi ad un Etiopie*.

<sup>34</sup> T. G. JACKSON, *Dalmatia, the Quarnero and Istria*, III (Oxford, 1887), 324.

<sup>35</sup> *Ibid.*, 323.

<sup>36</sup> *Ibid.*, 322.

<sup>37</sup> O. MARUCCHI, "Le recenti scoperte nel duomo di Parenzo," *Nuovo Bullettino di archeologia cristiana*, 2 (1896), 14-26. pl. 1-2. The whereabouts of the photograph Marucchi published is unknown.

<sup>38</sup> EITELBERGER, "Die Domkirche zu Parenzo," 105; LOHDE, "Der Dom von Parenzo," 67; JACKSON, *Dalmatia*, 321. The hand and wreath were also described by B. VERGOTTIN *Breve saggio d'istoria antica, e moderna della città di Parenzo nell'Istria* (Venice, 1796), 87.

<sup>39</sup> On this controversy, see E. RUSSO, *Sculture del complesso eufrasiano di Parenzo* (Naples, 1991), 285-86 and 293-94, note 669; TERRY and MUHLSTEIN, "New Documentary Evidence," (as in note 5), p. 3, note 5, pp. 8-9.

<sup>40</sup> We had three units of scaffolding, each of which rose in 3 levels. We had the scaffolding moved twice, so that we could more effectively cover the mosaics in question. In its third position, the three sets of scaffolding were placed against the three sides of the ciborium, to enable Nickerson to complete his digital photography.

<sup>41</sup> This variation made it difficult, at times, to classify any single tessera or group of tesserae by color, but we erred on the conservative side. Our general principle was to follow the apparent intent of the mosaicist. For example, if a background was meant to be "one color," as in a dark blue background, our tolerance for variation in hue was high. However, in other instances, where slight variation in color was crucial in the design, as in the subtle range of pinks and whites used in the skin of the faces, hands or feet, where often each line of tesserae would represent a change in hue (Figs. 21, 36, 37), we assigned new colors more readily.

<sup>42</sup> This can be hard to see in photographs, which are a poor substitute for face to face examination. Not only does one lose immediacy of color and scale using photographs, one also has to contend with the fact that, since individual tesserae have differently sloped surfaces, and are set at slightly various angles, reflection from the light source alters the appearance of colors in the photograph.

<sup>43</sup> The reader may have noticed that in both Figs. 11 and 14, the gold tesserae present the most dramatic contrast. The gold tesserae are discussed separately below.

<sup>44</sup> The original setting bed was more difficult to examine than other types, as it tends to be sparsely preserved and lies well beneath the face of the tesserae.

<sup>45</sup> The far left end of the jewel constitutes a later intervention, using white mortar that lies much closer to the upper face of the tesserae.

<sup>46</sup> We attribute work in this restoration to Bornia, but we also must remember that he had a number of assistants. We have not been able, at this point, to distinguish hands.

<sup>47</sup> The Visitation is one of the panels repaired during the 1950s, but a comparison of these rows of tesserae with photographs from the 1930s demonstrates that this section was not affected.

<sup>48</sup> TERRY and MUHLSTEIN, "Documentary Evidence," 4.

<sup>49</sup> The thin white filaments seen crossing these gold tesserae are from a mold that is affecting this part of the mosaics.

<sup>50</sup> Irina Andreescu-Treadgold assures us that this is also the case in many of the other early Christian mosaics she has examined. We noted a few black tesserae that appeared to be original, in the face of the servant in the Visitation, and again in the foot of the standing angel.

<sup>51</sup> TERRY, *Opus Sectile*.

<sup>52</sup> Aside from the shiny white marble tesserae sparsely used in faces (a very dense material with very low porosity), a much coarser and grainy off white marble was used in narrow white borders (usually one row of tesserae) which outline every main compartment of the mosaics (Fig. 11, 28, and most other figures). A third variety of white marble, one with a blue-grey cast (Proconnesian?) we found in isolated places, such as the halo of the standing angel, which was substantially original (Fig. 37: the base of the halo on each side). This is one of many questions which a materials analysis might shed light on.

<sup>53</sup> We are not including in this list a number of colors of stone used in faces, tan, light pink, pink, which we suspect are old but are not sure. With respect to use of local limestone, particularly in the face of Eufraius, see Šonje, "Mosaici parietali," 81.

<sup>54</sup> Because amber tesserae were used both alone and gilded, both by the original mosaicists and the restorers, assessing the original gold tesserae can be tricky.

<sup>55</sup> TERRY and MUHLSTEIN, "Documentary Evidence", 14.

<sup>56</sup> We found traces of gold leaf extensively along the column of the Visitation. Almost all the white cubes adjoining lines of amber glass, both horizontal and vertical, contained traces.

<sup>57</sup> Both types of new gold appear together in the collar of St. Filicitas, and, in the Annunciation, in the jeweled base of the footstool from the Virgin's throne.

<sup>58</sup> The Annunciation was done by Neuhauser, but then redone by Bornia. He must have redone all the gold, which we know was a problem (1889-D#0317/ccd; 1891-D#0467/ccd), as the cubes and their setting are identical to what is seen in the halos of female saints in the intrados and elsewhere.

<sup>59</sup> Sufficiently large areas of the basket are original that we can be certain this was a technique employed in antiquity.

<sup>60</sup> While we noticed the gold particularly, these varied and purposeful mixtures of like colors to produce effects that belie the inherent limitations of the mosaic medium may be seen elsewhere in the mosaics, for example in the scallop shells with green backgrounds, in architectural details, and in the modeling of the faces.

## APPENDIX.

This appendix provides a list of our sondages, giving their locations and, where we were able to measure, dimensions in centimeters.

1. The base of the gold jeweled band on the far south face of the apse wall; lowest jewel in band. 36.5 h x 20 w.
2. The left end of red jeweled band underneath the medallions with saints (south side). 22 h x 40 w. (Fig. 11)
3. The acanthus cup under the medallions with saints (south); left corner. 45 h x 37 w. (Fig. 14)
4. The Visitation; the lower right corner of the house. 41 h x 29 w. (Fig. 13)
5. The face of Justina (lowest medallion on south side). 24 h.
6. The collar of Justina. (Figs. 29-30)
7. The halo of Justina.
8. The medallion of Justina, segment of white border, from 7 to 9 o'clock.
9. The Visitation; the servant's face and right hand.
10. The Visitation; Elizabeth's scarf
11. South apse; lowest rinceaux, south side of arch. 27 h x 42 w.
12. The red jeweled band underneath the Visitation; seventh jewel from the south end. 18 h x 11.5 w. (Fig. 15)
13. The gold jeweled band beneath the standing angel (central pier); center and left jewels. 44 h x 24.5 w. (Figs. 16-18)
14. The standing angel (central pier); area of left foot, lower hem and background. 42 h x 42 w. (Fig. 21)
15. Zacharias (north pier); area with lower left foot, embroidered hem and background. 46 h x 28 w.
16. John the Baptist (south pier), area with lower left foot, hem and background. (Fig. 31)
17. Annunciation, Gabriel, area of lower left foot, hem, background and adjacent blue border. 43 h x 43 w. (Figs. 23-25)
18. Annunciation, Virgin, area of left foot and basket. 35 h x 35 w. (Fig. 26)
19. Zacharias' box. 22 h x 28 w. (Fig. 35)
20. Zacharias, censer with chain and hand. 46 h x 13 w. (Figs. 33-34, 42)
21. Zacharias, left side of hair and all of beard. (Fig. 36)
22. Annunciation, Virgin's veil and face, and right hand. (Fig. 22)
23. Gold jeweled band above standing angel (central pier), farthest two right hand jewels. 13 h x 50 w. (Fig. 20)
24. Shell above standing angel (central pier), right half. 67 h x 40 w.
25. Standing angel (central pier), face and halo. 42 diam. (Fig. 37)
26. St. Filicitas (lowest medallion, north side of apse), left half of face, halo and collar. 53.5 h x 23 w. (Fig. 40)
27. North intrados of window (second from south), lower end, up through the first design pattern. 52 h x 36.5 w.
28. South intrados of window (first from north), bottom two coils of ribbon. 60 h x 35 w.

## ZIDNI MOZAICI U EUFRAZIJEVOJ KATEDRALI U POREČU: PRETHODNO IZVJEŠĆE

### SAŽETAK

U članku su iznijeti rezultati istraživanja porečkih zidnih mozaika 6. stoljeća provedenog u mjesecu lipnju 1997. godine. Istraživanje je imalo dva cilja: (1) vizualno ispitivanje mozaikalnih površina sa skela s ciljem da se ustanove materijali i tehnike kojima su se služili autori izvornih mozaika i kasniji restauratori; (2) pripremu kompjuterizirane baze podataka slika na mozaicima. Članak započinje kratkim pregledom povijesti konzervatorskih zahvata na mozaicima, te opisa i slikovnih prikaza mozaika iz vremena koje prethodi restauracijama. U nastavku su iznijeti rezultati vizualne analize kockica mozaika (*tesserae*), njihove podloge i tehnike izvedbe što je omogućilo da se razluče rad autora izvornih mozaika i dvije različite restauracije.

*Povijest konzervacije.* Mozaici su restaurirani dvaput tijekom 19. stoljeća, a u 20. su stoljeću najmanje u dva navrata popravljani. Prvi restauratorski zahvat (1886) koji je izvela specijalizirana tvrtka Neuhauser iz Innsbrucka bio je manjeg opsega. Luigi Solerti restaurirao je polje s prizorom Navještenja na južnoj strani apside. Druga restauracija (1890-1900) koju je izveo Pietro Bornia iz Vatikana bila je sveobuhvatna (apsida, trijumfalni luk, bočne apside). Nasuprot

tome, zahvati 20. stoljeća bili su neznatni, uglavnom u svezi s mjerama za osiguravanje mozaika tijekom II. svjetskog rata (1944/48) i netom završenog rata u Hrvatskoj (1994). Manji restauratorski zahvat poduzet je i u kasnim pedesetim godinama, za vrijeme arhitektonskih radova na bazilici.

*Opisi i slike iz vremena prije restauratorskih zahvata.* U ovom dijelu teksta obrađeni su izvori iz vremena prije prve restauracije mozaika. Podaci u njima pružaju dragocjene naznake, poglavito o izvornim ikonografskim pojedinostima, ali nisu uvijek jednako vjerodostojni. Broj novih pitanja koja iz njih proizlaze jednak je broju odgovora koje pružaju. Tri su neprijeporna zaključka: motiv na vrhu svoda apside (ranije krizmon) restauracijama je zamijenjen likom janjeta; restauratori su promijenili i oblik Bogorodičinog prijestolja, a zapisi o likovima između prozora razlikuju se od današnjeg stanja. Zamjena krizmona janjetom dokumentirana je i u drugim izvorima, ali o Bogorodičinom prijestolju i likovima između prozora u restauratorskoj dokumentaciji nema spomena.

*Vizualna analiza.* Očevid na licu mjesta uz pomoć skele, bio je ograničen na donji dio zida apside (do razine natpisa).

Najpomnije je analizirano 30 "sondi", površine cca 25 x 40 cm, na kojima su ispitivane *tesserae*, podloga i tehnika izvedbe. Ustanovljene su tri faze. (1) Izvorni mozaici 6. stoljeća sadržavali su više od 50 nijansi boja, s kockicama uglavnom od stakla, ali također i od mramora, vapnenca i opeke, umetnutih u podlogu od sive žbuke. (2) Solertijevom restauracijom 1886. godine, prepoznatom na dijelu scene Navještenja, unijeto je najmanje 9 novih boja koje se drugdje ne nalaze, a kockice su postavljene vrlo zbijeno. (3) U restauraciji Petra Bornie između 1890. i 1900. godine upotrijebljene su kockice više od 30 boja, aplicirane na podlogu od ružičaste žbuke. Glavno obilježje tog zahvata je vrlo pažljivo spajanje očuvanih izvornih ploha s restauriranim ploham.

*Tesserae*. Budući da je glavnina mozaika ili izvorna ili rezultat restauracije Pietra Bornie, raspravljanje o kockicama, odnosno o podlozi i tehnici izvedbe, usmjereno je na razlike između izvornih mozaika i mozaika koje je restaurirao Bornia. Izvorne *tesserae* su nepravilnih oblika, s neravnim površinama, velike poroznosti, odaju dojam istrošenosti i vrlo su raznolikih boja. Nove su *tesserae*, protivno tome, pravilnijih oblika, oštro rezanih bridova, glatkih i ravnih površina, male poroznosti i homogenih boja. Na sl. 11 sve *tesserae* lijevo od bijelih diskova su stare, dok su one na desnoj strani nove.

*Izvorne i restaurirane podloge*. Proučavanje podloga od žbuke je znatno složenije, dijelom zato što je žbuku, čiji se sastav s vremenom tek neznatno mijenja, teško procjenjivati isključivo na temelju boje, a dijelom i zato što je Bornia načinio mnoge sitnije popravke na mozaicima pokušavajući uglavnom boju žbuke uskladiti s bojom izvorne podloge. Izvorne podloge koje nisu sačuvane na velikim površinama, nego samo mjestimično, općenito su vrlo trošne, sive do sivo-bijele boje, često s bijelim umecima. Izvorna tehnika izvedbe izrazito je nepravilna, s neuredno umetnutim kockicama pod različitim kutevima, što stvara dojam neurednosti. Sl. 15 pokazuje izvornu podlogu i tehniku izvedbe.

Najizrazitije obilježje podloga koje je načinio Bornia je dobro sačuvana ružičasta žbuka fine konzistencije s ponešto sitnih crvenih čestica. Njegova tehnika izvedbe mo-

zaika vrlo je uredna, s kockicama jednake veličine dosljedno raspoređenim u podjednake redove, kako pokazuju slike 16-18. Kontrast između stare i nove izvedbe moguće je vidjeti na slici 11; lijeva strana ukrasne trake je stara, a desna je nova.

*Metode Pietra Bornie*. Većina intervencija P. Bornie na ispitivanim površinama je manjeg opsega i obuhvaća sitne popravke i krpanja. Bornia je dao sve od sebe kako bi staro povezao s novim i u članku su prikazane različite kombinacije starih i novih kockica i načini njihova umetanja u podlogu. Pokušavalo se poštivati boju izvornih kockica. Bornia nije pomno nastojao sačuvati samo izvorne *tesserae* i žbuku, već i ikonografske pojedinosti. Na liku Zaharije (između prozora sjeverno), na primjer, znakovito je da su neki ključni detalji, kao što su kadionica i kovčežić, ostali izvorni, premda su *tesserae* oko njih promijenjene.

*Zlatne tesserae*. Zlatne *tesserae* su slučaj za sebe. Glavnina zlata na današnjim mozaicima potječe od restauracija. Izvorne zlatne *tesserae* načinjene su od poluprozirnog stakla boje jantara, naprije pozlaćenim, a potom prekrivenim tankim slojem prozirnog stakla. Mnoge zlatne *tesserae* izvornog mozaika izgubile su pozlatu postavši smeđe ili crne. U dogovoru s austrijskim konzervatorima Bornia je taj problem uspio riješiti. Pojedine su površine pokrivene novim zlatnim kockicama, ali je — budući da su nove kockice imale površine visokog sjaja — Bornia unio i neka nova rješenja. Jedno od njih bilo je da se starije kockice ponovno pozlate i potom pokriju lakom. Na površinama pojedinih sondi tragovi pozlate pronađeni su i na rubovima susjednih bijelih kockica (sl. 13).

Zaključno, moguće je reći da je restauracija Pietra Bornie bila izvedena izuzetno pomno, naročito za njegovo vrijeme. Na većini ispitivanih površina mozaik se sastojao od pažljivog spoja starih, općenito brojnijih, i novih kockica. Starih je kockica uglavnom više od 75%, a njihov udio ponegdje doseže i 98%. Čak i jako restaurirane površine, kako što su na primjer plohe prozorskih niša, znaju sadržavati i do 50% starih kockica. Poneke, kao ploha s likom Sv. Ivana Krstitelja i pojedine zlatne plohe, su međutim pretežito nove.

