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# Three Newly-Acquired Panels from the Altarpiece for Santa Croce by Ugolino di Nerio

Dillian Gordon and Anthony Reeve

## Evidence for the reconstruction of the altarpiece

Dillian Gordon

In 1983 the Gallery was fortunate enough to acquire by private treaty sale from the Cook Collection, three fragments of the altarpiece painted for Santa Croce in Florence by the Sienese painter, Ugolino di Nerio (active 1317–27), thereby adding to its already substantial collection of panels from this altarpiece. During the cleaning and restoration of the three Cook fragments (see the section by Anthony Reeve which follows) — *Moses* (No.6484 [1]), *David* (No.6485 [2]) and two spandrel angels (No.6486 [3]), see Plates 7–9, p.46 and p.47 — important technical evidence emerged which goes some way towards establishing the original appearance of the altarpiece.

Ugolino's altarpiece was one of the most important altarpieces commissioned in Florence during the fourteenth century. It was painted for the high altar of the Franciscan church of Santa Croce in about 1325. It was dismantled in 1566 to make way for a ciborium designed by Vasari and was re-assembled in the friars' dormitory. Subsequently, probably at the end of the eighteenth century or in 1810 when the friary was suppressed, most, if not all of the altarpiece entered the Young Ottley Collection [4].

The original appearance of the altarpiece is still being debated by scholars. Most recently two major contributions to the study of its reconstruction were made, almost simultaneously, by C. Gardner von Teuffel [5] in a fundamental study of the 'buttressed altarpiece' and by Loyrette [6] who published an eighteenth-century drawing (Fig.3) made for the art historian Séroux d'Agincourt (1730–1814). Loyrette's article appeared in time for Gardner von Teuffel to add a postscript to her article, refuting Loyrette.

It can do no harm to rehearse briefly some of the essential elements in the argument. The sources for the reconstruction (Fig.4) and iconographic programme are as follows.

(a) The three engravings published in 1652 by Catalano from drawings made of the altarpiece by the painter, Baccanelli, when it was already in the friars' dormitory in 1647 and cited by both Gardner von Teuffel and Loyrette [7].

(b) The description of the altarpiece made by della Valle who saw the altarpiece in the friars' dormitory in 1785 [8].

(c) The drawing made for Séroux d'Agincourt in the 1780s [9] and recently published by Loyrette (see above).

(d) The description made by Waagen in 1835 when he saw most of the altarpiece in the collection of Young

Ottley [10], and again after the two sales of the Ottley Collection in 1847 [11], and 1850 [12] when he saw fragments in the Fuller Russell Collection in 1854 [13].

The surviving fragments were in 1955 put together by Coor-Achenbach in a seminal article on Ugolino [14] and will be discussed in detail in their relevant section. Her reconstruction was admirably accurate, considering the material she had to work with.

In a reconstruction, working from the base upwards, the predella, showing the Passion of Christ, is the most unequivocal feature, surviving as it does intact and its sequence chronologically determined.

The sequence of predella scenes runs as follows: the *Last Supper* (Lehman Collection, Metropolitan Museum of Art, New York), the *Betrayal* (No.1188, National Gallery, London), the *Flagellation* (Gemäldegalerie, Berlin), the *Ascent to Calvary*, the *Deposition* (Nos.1189 and 3375, National Gallery, London), the *Entombment* (Gemäldegalerie, Berlin), and the *Resurrection* (No.4191, National Gallery, London), all of equal measurements, that is c.58.5cm wide (painted surface 53cm wide).

The Séroux d'Agincourt drawing indicates that the predella survives complete, and that the chronological hiatus was elided by the placing of the *Crucifixion* (lost) above the central scene of the *Virgin and Child* (lost). The X of the crucifix in the *Ascent to Calvary*, placed at the very centre, notionally carried the whole altarpiece — suitably, in view of the dedication of the church.

Two of the predella panels, the *Last Supper* and the *Resurrection* (Fig.1), each have an identical damage in the lower outer corners which has been repaired with an inset piece of wood with vertical grain [15]. This confirms that they were the terminal panels and that the altarpiece was indeed supported by the type of buttress proposed by Gardner von Teuffel: the damage would have been occasioned by the removal of the base socle let into the picture surface. X-radiographs show that the scenes were painted on a once single piece of horizontal poplar, divided up by mouldings applied to the surface, as in Duccio's *Maestà*, which was completed in 1311, and whose design they derive from both structurally and iconographically.

Photographs, after cleaning and before restoration, (Figs. 14–16, see also Fig.1) show that all the predella panels in the National Gallery have been damaged on all four sides, although the present mouldings have been built up on fragments of the original frame and represent an accurate reconstruction of the original frame. The individual scenes apparently abutted one another and the curious diagonal intermediate hatching shown in the d'Agincourt drawing evidently represents the predella after it had been dismembered. Gardner von Teuffel [16] noted the 'striking disjunction between the scene divisions and the upper panels', which she felt showed

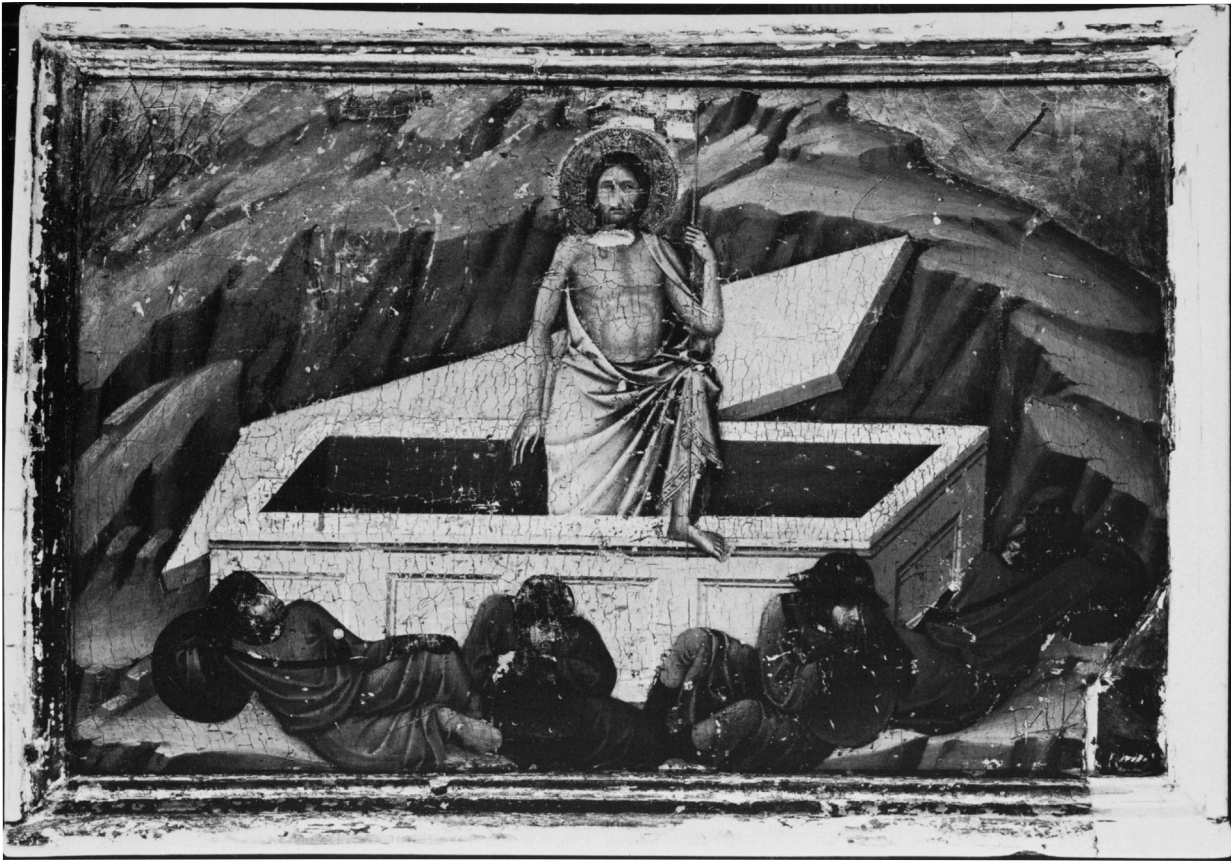


Figure 1 The Resurrection (No.4191), after cleaning and before restoration.



Figure 2 The back of the Ascent to Calvary (No.1189).

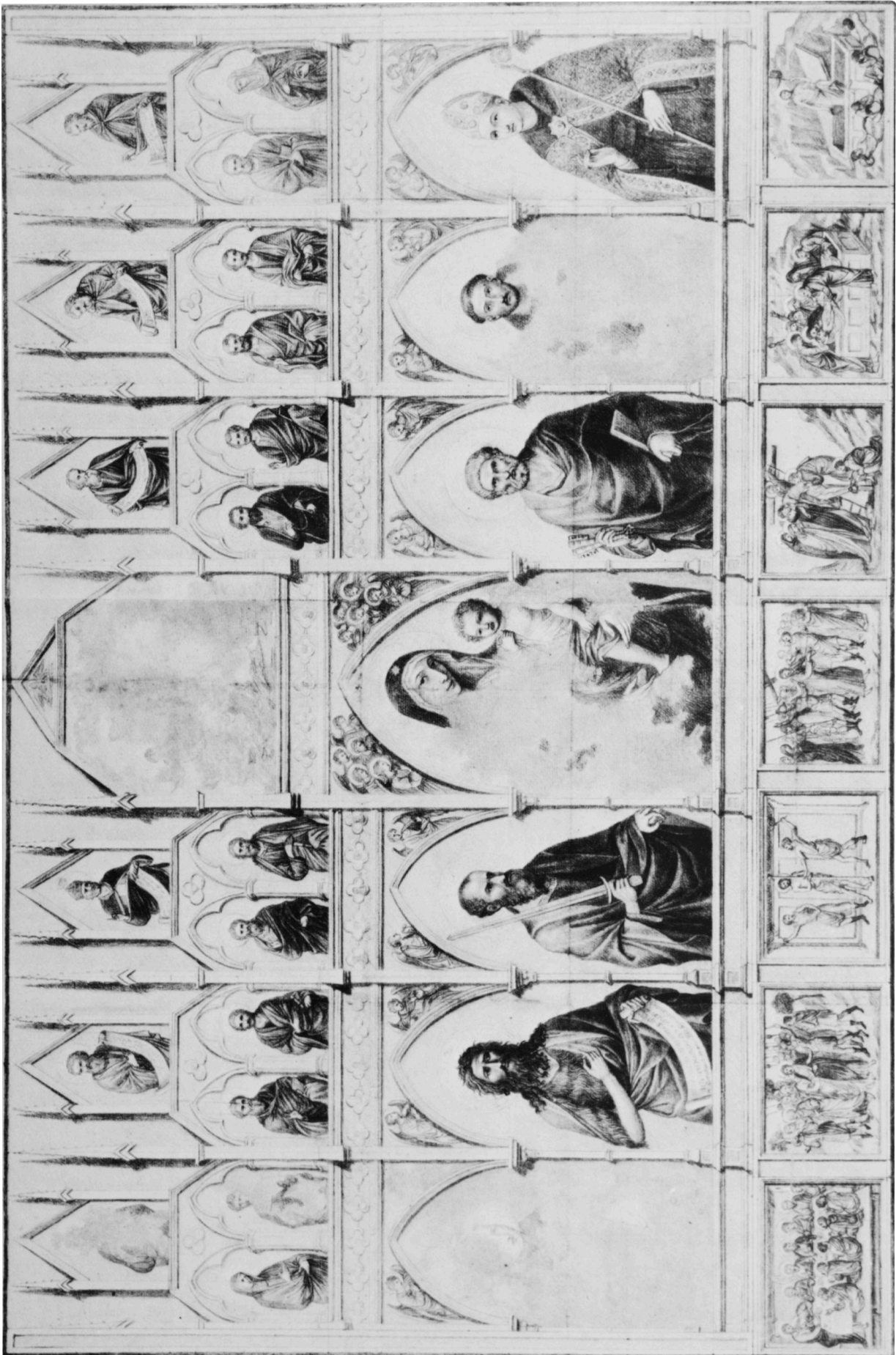


Figure 3 18th C. drawing of the Ugolino di Nerio altarpiece. Rome, Vat. Lat., 9847, f.92'.

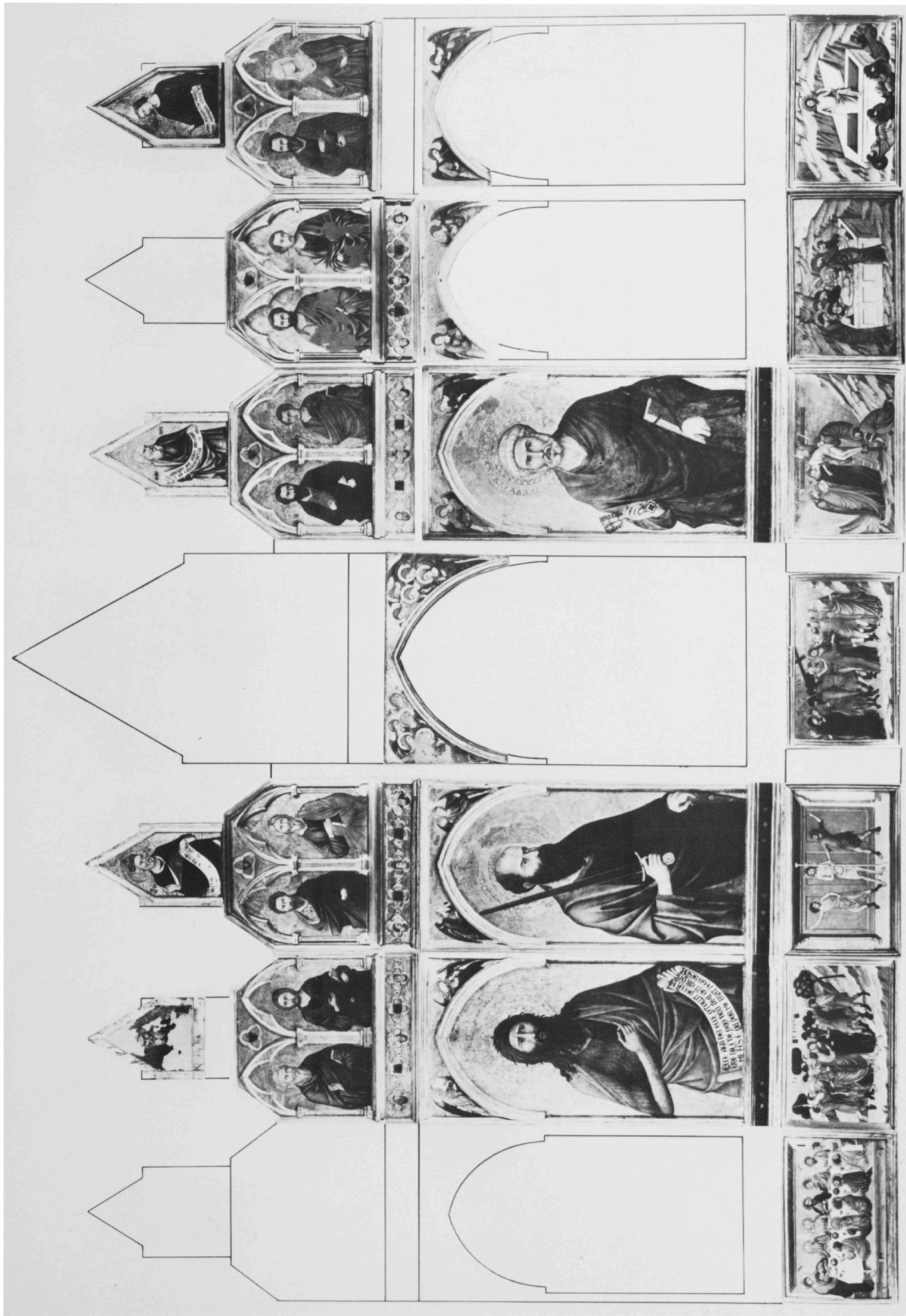


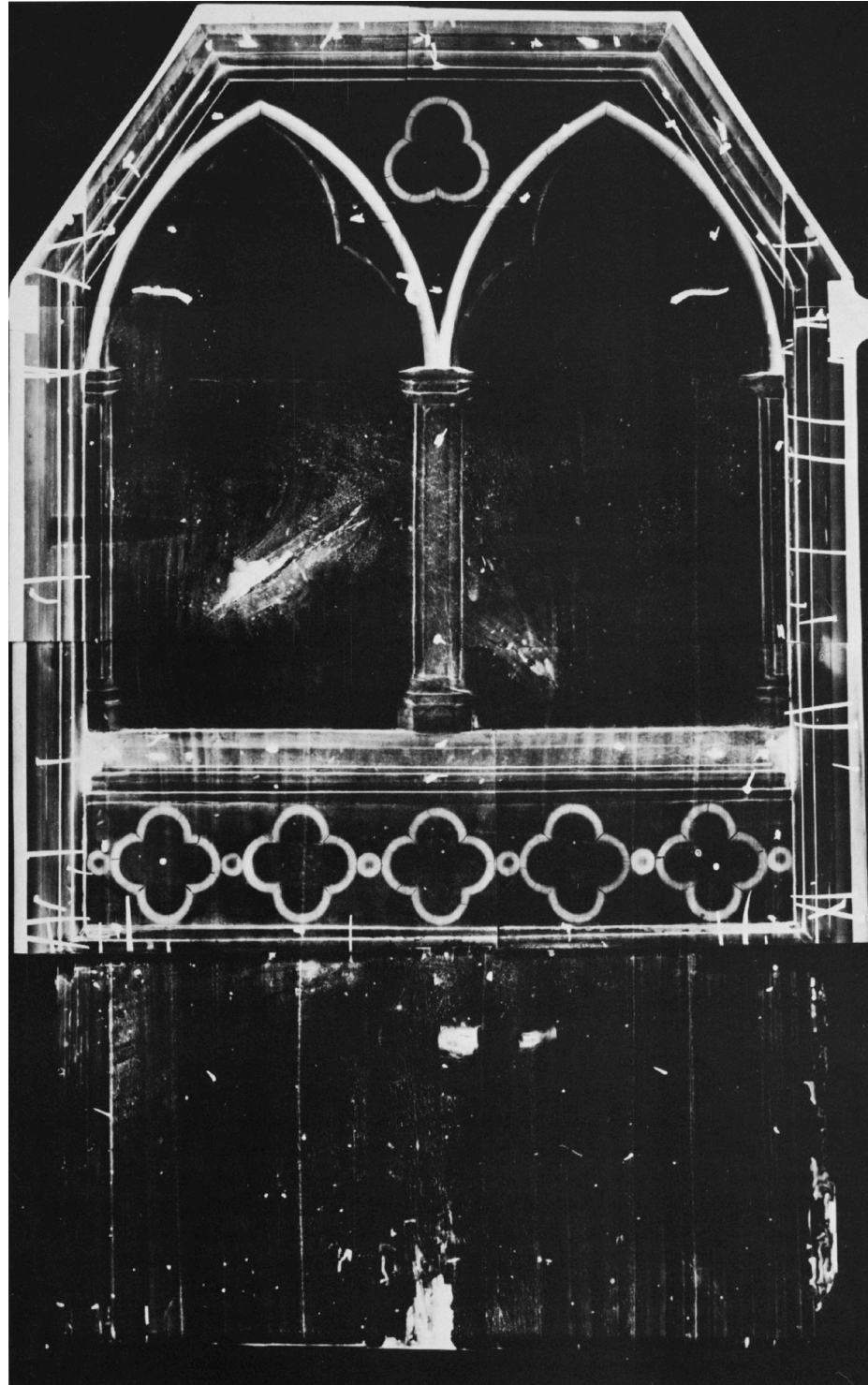
Figure 4 Reconstruction of the altarpiece painted by Ugolino di Nerio for Santa Croce, Florence, c.1325.

that the drawing was made after dismemberment of the altarpiece. In fact three of the panels, the *Betrayal*, the *Ascent to Calvary*, and the *Entombment* are all correctly aligned in the drawing. The evidence of the damaged frames suggests that the panels had been wrenched, not only from each other, but also from a base containing frame, perhaps of the type christened by John White a 'wrap-around frame' [17]. Alternate predella panels, namely the *Entombment*, *Ascent to Calvary* (Fig.2) and *Betrayal*, have vertical batten marks, not centred on the scenes, but placed at intervals of approximately 100 cm and not continued in the main panels above, which

suggests that their function was to contain the predella within the base frame and prevent it from bowing.

One notable omission from the predella, as shown in the drawing, are the arms of the Alamanni family, mentioned in a description of 1575 (see below). Gardner von Teuffel explained the discrepancy between the width of the Los Angeles spandrel angels (75cm), originally located above the central panel of the *Virgin and Child*, and the width of the *Ascent to Calvary* (58.5cm) below the central panel, as accountable for by strips measuring approximately 10cm each, bearing the coat-of-arms, and placed on either side of the *Ascent to Calvary* [18].

**Figure 5**  
Composite X-radiograph of SS. *Simon and Thaddeus* (No.3377), and a fragment (spandrel angels, No.3378) of the main tier below.



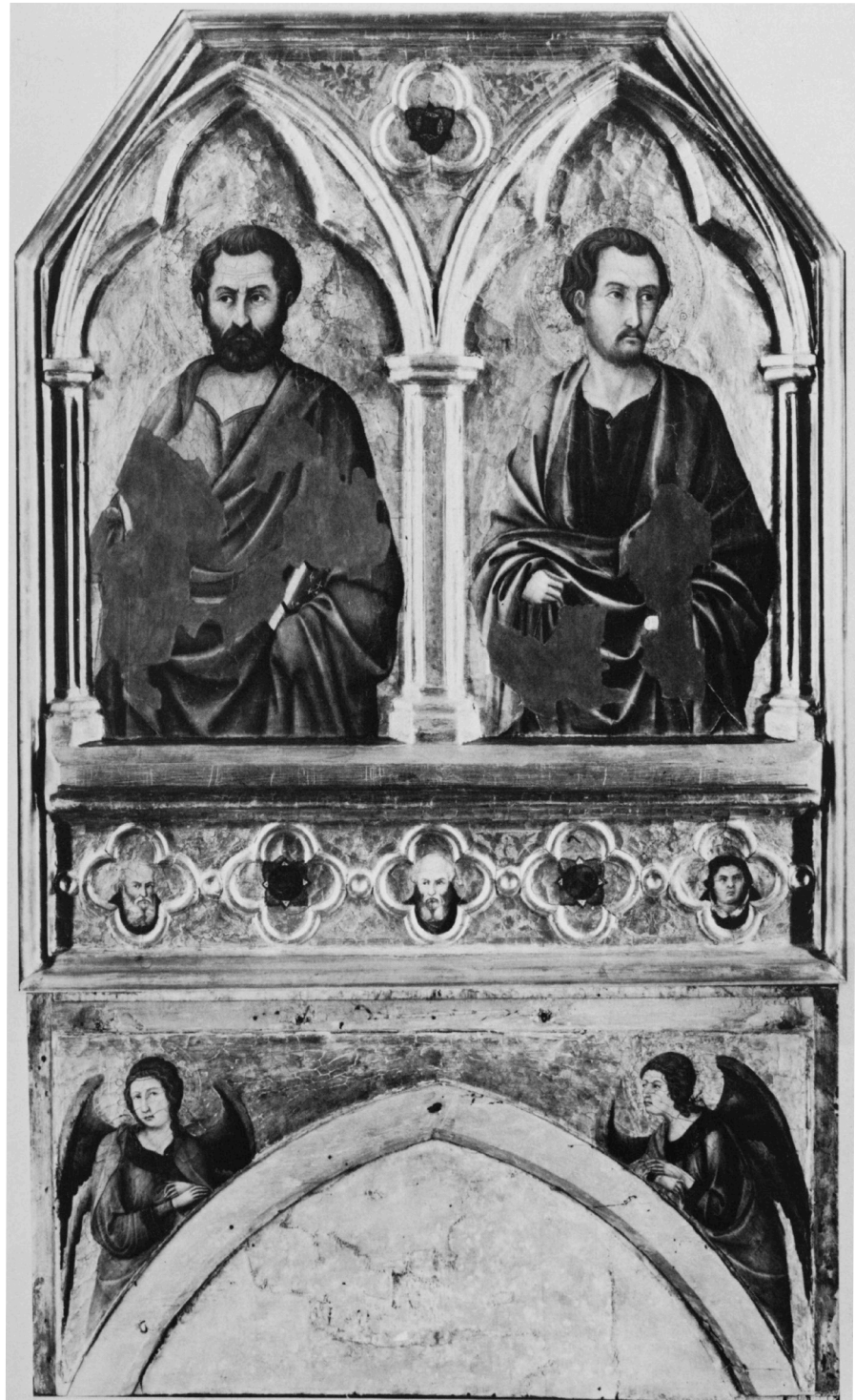
The pattern of the wood grain of the surviving panels could accommodate two such intervening sections. It is interesting that when the Operai of Santa Croce ordered a replacement for the marble altarpiece in 1566/7 they gave the width of the one then in place as seven *braccia* [19]. Gardner von Teuffel pointed out that the width of each predella panel equals one *braccio*. It seems therefore that the measurements of the altarpiece suggested the internal proportional divisions of the predella, although possibly vice versa. If the centre of each scene aligned with the centre of the main tier above, then the overhang on either outer side would have been approxi-

mately 10cm, part of this let into the side buttresses. The reasons for the removal of the coat-of-arms of the patron, and the consequent closing up of the predella scenes, shown in the drawing, is touched on below.

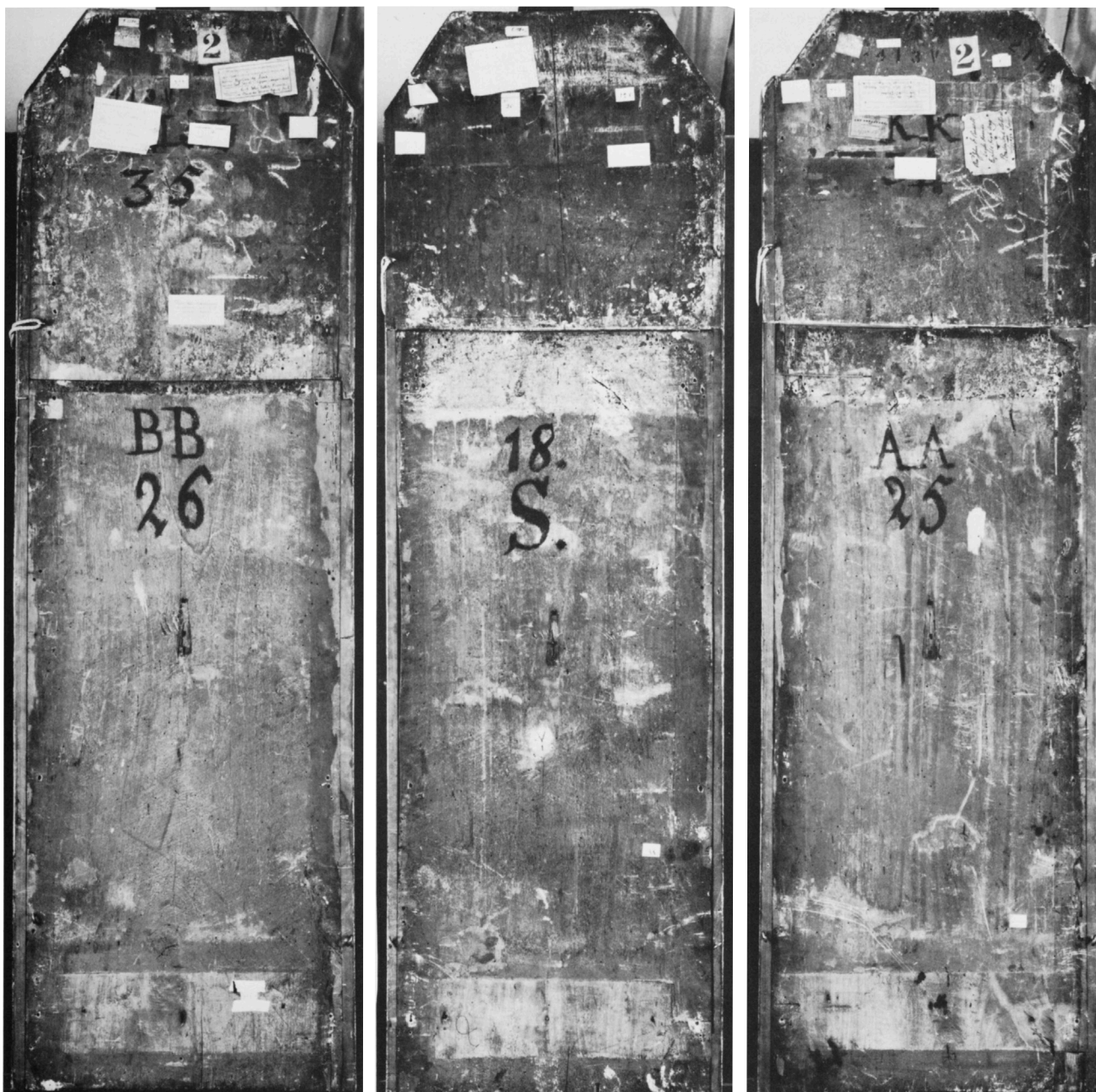
Surviving from the main tier are the figures of S. John the Baptist, S. Paul and S. Peter, all in the Gemäldegalerie, Berlin [20].

The subjects of the main tier have been completed on the basis of written and visual evidence. Engravings were made by Baccanelli in 1647 showing the lost panels of S. Anthony of Padua, S. Louis of Toulouse and S. Francis, and were published by Catalano; the altarpiece

**Figure 6**  
SS. Simon and Thaddeus  
(No.3377),  
and spandrel angels  
(No.3378),  
see Fig.5.







was already in the dormitory by that date. In a vague description, della Valle in 1785 (see above), singled out individual scenes of the predella, but otherwise mentioned only the central panel as being the *Virgin and Child* bearing the signature: 'Ugolinus de Senis me pinxit'. Waagen in 1835 described the panels which he saw in the Ottley Collection as including six half-length saints (unspecified) as well as the then much damaged central panel of the *Virgin and Child*, and bearing the signature, attached to the *Ascent to Calvary*: 'Ugolinus de Senis me pinxit'. And finally the Séroux d'Agincourt drawing shows SS. Anthony, John the Baptist and Paul on the left of the central *Virgin and Child* and SS. Peter, Francis and Louis of Toulouse on the right.

Happily for the art historian, not only was the altarpiece so elaborately and inventively designed that the pose of every single spandrel angel differs from each other, but also the Séroux d'Agincourt drawing copied them most faithfully. So it is possible to identify without

any shadow of doubt the spandrel angels above SS. John the Baptist, Paul and Peter respectively, still attached to their original panels. Identifiable in the drawing are also the spandrel angels in the National Gallery (No.3378, see Plate 6, p.35) placed above S. Francis, while recognizable above S. Louis of Toulouse are those formerly in the Cook Collection, now in the National Gallery (No.6486, Plate 9, p.47). Key to the establishment of the veracity of the d'Agincourt drawing is the fact that these two lots of spandrel angels are still attached to the fragments of the original main tier panels [21]. They are each painted on a very thin single piece of wood, nailed and glued to the original very substantial plank of poplar on which the main tier saints were painted, measuring 4.5cm thick and cut from the very centre of the tree-trunk (see Fig.12). Both the spandrel angels fragments were severed from the main tier just above the circumference of the haloes of the main figures of S. Francis and S. Louis [22]. In the case of each,

**Figure 7**  
The backs of the panels showing SS. John, Paul and Peter (Gemäldegalerie, Berlin).

the fragment from the main tier still retains some of its original linen and traces of gesso and in the case of No.6486 the original gesso moulding of the arch which bonded the spandrels to the main tier still survives (see p.50). What is interesting, is that the piece of poplar to which No.3378 was originally attached still has, along the top right-hand corner edge, a cylindrical hole for a wooden dowel to lock it into the adjacent panel, and the traces of such a hole in the corresponding position in the top left-hand corner. The piece of wood bearing the spandrel angels No.6486 has a similar hole on the left, but none on the right. This suggests that the right-hand side abutted the frame and that the S. Louis of Toulouse was indeed the outermost panel as shown in the drawing; this is confirmed by the absence of dowel holes on the right-hand side of the tier above, present on the left-hand side (see below). The two holes on the right of No.3378 and on the left of No.6486 match each other precisely in size and position. A small dowel made from the imprint of the two holes was found to match the two panels (see Fig.13) confirming that they were adjacent.

Having confirmed the position of S. Louis of Toulouse as the outer right-hand panel, and S. Francis adjacent, as shown in the drawing, the remaining saint on that side could only have been, for compositional reasons, S. Peter, again as shown in the drawing immediately to the right of the *Virgin and Child*. If one balances S. Paul with S. Peter, then S. Paul was immediately on the left of the Virgin. S. John the Baptist, patron saint of Florence, preacher and pre-cursor of Christ, would have balanced S. Francis, preacher and post-cursor of Christ, or *alter Christus*. S. John the Baptist was also Francis' patron saint. And, in fact, X-radiographs again show that the dowel holes situated top and bottom of these two panels match precisely, but only if S. John the Baptist is on the left of S. Paul, and not the other way round, since the siting of the holes is not systematic. S. Anthony Abbot as a major Franciscan saint would have been the counterpart of S. Louis [23]. Further confirmation of the pairing of SS. Anthony and Louis of Toulouse is the way in which the poses of the spandrel angels neatly punctuate the two outermost panels: while all the spandrel angels face towards the central panel of the *Virgin and Child*, those above S. Anthony and above S. Louis of Toulouse face inward and down to the saint below.

Thus the arrangement of figures corresponds exactly with those of the Séroux d'Agincourt drawing [24] and suggests that so far it is entirely accurate.

The arrangement of the third tier seems similarly to have been as shown in the drawing. X-radiographs, which reveal the pattern of the grain of the wood (Fig.5), confirm that the panel with S. Francis, crowned with the spandrel angels (No.3378), and the panel with SS. *Simon and Thaddeus* (No.3377) [25], were originally part of a single plank of wood. This is the arrangement (Fig.6) shown in the Séroux d'Agincourt drawing. The reconstruction of this tier is bedevilled by the fact that in the Berlin panels the Apostles have been variously cut from the main tier and then wrongly re-assembled. However, the method in which the panels were segmented, helps in the correct re-arrangement (Fig.7). S. John the Baptist and S. Paul were separated from the Apostles' tier together with the band of quatrefoils.

Whereas in the cutting of the S. Peter panel, the band of quatrefoils was left attached to the Apostles above. This means that SS. James and Philip definitely went above S. Peter, as shown in the drawing, confirmed by the continuous pattern of the wood grain visible in the X-radiographs. Of the remaining pairs shorn of the band of quatrefoils, it makes iconographical sense to place SS. Mathias and Elizabeth of Hungary [26] at the outermost edge balancing the Apostle paired with a female saint also at the outermost edge above S. Anthony; the absence of dowel holes on the right confirms this as the outermost panel (see above). Again the pattern of the wood grain confirms that this panel went above No.6486 and S. Louis of Toulouse. Of the remaining two pairs, the Berlin *Catalogue* [27] notes that SS. Matthew and James Minor have a join which corresponds with a join in the panel of S. John the Baptist; this leaves SS. *Bartholomew and Andrew* (No.3473) above S. Paul, all as shown in the drawing. Both these positions are confirmed by the continuous pattern of the wood grain visible in the X-radiographs. The matching dowel holes in the panels of this tier also confirm their positions as in the drawing.

The arrangement of the pinnacle panels in the final tier again demonstrates the accuracy of the drawing in terms of the original structure.

X-radiographs show that the pinnacle panel of *David* was painted on the same piece of poplar as SS. *Bartholomew and Andrew*, and similarly that the Daniel in the Johnson Collection, Philadelphia Museum of Art, was painted on the same piece of wood as the SS. Mathias and Elizabeth of Hungary and was the outermost pinnacle on the right, as shown in the drawing [28]. On the basis of the Williamstown altarpiece also attributed to Ugolino di Nerio and painted for a Franciscan house, one may postulate the missing pinnacle panels as having been Jeremiah to pair with the surviving *Isaiah* (No.3376), and Ezekiel to pair with the surviving Daniel [29]. The main tier, band of quatrefoils, half-length Apostles, and pinnacles were all painted on a single vertical plank and each constituted a single unit.

These units were almost certainly manufactured as *individual* items in the workshop. The cleaning of both the *Moses* and *David* panels (see below) revealed interesting features of the working methods of Ugolino. Both panels retain their original side edges (the *Isaiah* panel has been scraped of its original gesso and linen) and show that the panels were gessoed right up to the very edges, and that the gold extended quite a way (6mm) beyond the incised line marking the position of the outer frame (see Figs.14 and 15). This suggests that the panels were carved, and had only the gable moulding and not the side moulding applied; they were then gessoed, gilded and painted as separate pieces. They were then locked together with cylindrical dowels positioned at irregular intervals down the sides and then attached to the horizontal predella below with a frame consisting of finial-topped vertical elements, applied only when the whole altarpiece was finally put together and the whole slotted into the containing buttressed frame. This would probably have been done either in the workshop or, more likely, *in situ* when the altarpiece was being put up on the altarblock and secured with

vertical buttresses reaching down to the floor. Heaving such a huge machine into position must surely have presented logistical problems and the documents surviving for the San Pier Maggiore altarpiece [30] suggest that a considerable amount of work on the spot was involved in the actual setting up of the altarpiece on the *mensa*.

Gardner von Teuffel rejected the possibility of the central panel having been immediately surmounted by a *Crucifixion* in favour of a divided panel of saints. There seems again no reason to doubt the drawing's accuracy. When one can prove that the draughtsman went to such trouble to be accurate in every finicky detail of the angels' poses, or indeed in almost every item of the composition which can be gauged against a surviving piece, it is difficult to sustain the argument that selective elements such as the *Crucifixion* were fancifully reconstituted in the drawing. Indeed, it would be strange that in an altarpiece set on the high altar of Santa Croce the one iconographic lacuna should be the *Crucifixion*.

The exact circumstances of the commission, how far it was a case of conventual or private patronage is not known. It was Davies who first noted that the altarpiece was probably commissioned by the Alamanni family [31]. They had the patronage of the main altar, which they retained until at least 1439, as shown in an inventory of the chapels published by Hall [32]. And the altarpiece is still supposed to have borne their arms in 1575 [33]. There seems to have been some dispute over the demarcation of patronage around the high altar between the Alamanni and Alberti families during the 1370s [34] since the Alberti family had the patronage of the transepts and apse. It may be that the Alamanni family commissioned the huge elaborate altarpiece from Ugolino di Nerio in order to proclaim magnificently their claim to the high altar, a small island of patronage, surrounded by the rival patronage of the Alberti. It may be that the later removal of the arms from the predella indicated the cessation of the Alamanni patronage.

The precise date of the altarpiece is not known. It is known that Ugolino painted a probably similar high altarpiece for the Dominican church of Santa Maria Novella in about 1320, an altarpiece commissioned by the Sasseti family, which originally bore their arms [35], and whether any parts of the altarpiece survive, such as perhaps the Isaiah panel in the National Gallery, Dublin, can go no further than speculation [36]. It seems that Ugolino probably painted the Santa Croce altarpiece after the Dominican commission, in about 1325.

Fusing as it does, the complex elegance of Siense half-length polyptychs with the narrative eloquence of Duccio's *Maestà*, Ugolino's gigantic and colourful altarpiece was one of the outstanding commissions in Florence during the first half of the fourteenth century.

### Acknowledgements

I am extremely grateful to the Gemäldegalerie in Berlin, and particularly to Dr Erich Schleier, for undertaking on our behalf the X-radiography of all their panels and for placing the photographs at our disposal. I am also grateful to the John G. Johnson Collection, Philadelphia Museum of Art for supplying X-radiographs of their Daniel panel.

### Notes and references

1. Poplar panel, 55 × 31.5 cm. His scroll bears the inscription: '*Videbam que rubus aroebat et non comburebatur*' (Exodus III: 2).
2. Poplar panel, 55.5 × 31.5 cm. His scroll bears the now much damaged inscription: '*De fructe ventris tui ponam super sedem tuam*' (Psalm 131: 11).
3. Poplar panel, 27 × 56 cm.
4. DAVIES, M., *The Earlier Italian Schools: National Gallery Catalogues*, 2nd ed. revised (London 1961), pp.533–42 meticulously disentangled the complicated history of the panels and the Young Ottley Collection.
5. VON TEUFFEL, C.G., 'The Buttressed Altarpiece: A Forgotten Aspect of Tuscan Fourteenth Century Altarpiece Design', *Jahrbuch der Berliner Museen*, Band **21** (1979), pp.21–65. Gardner von Teuffel summarizes the surviving panels and their literature (*op. cit.*, p.48, notes 67, 69, and p.50, note 70).
6. LOYRETTE, H., 'Une source pour la Reconstruction du Polyptyque d'Ugolino da Siena à Santa Croce', *Paragone*, Anno **XXIX**, No.343 (Settembre, 1978), pp.15–23.
7. VON TEUFFEL, C.G., *op. cit.*, p.48, note 69; LOYRETTE, *op. cit.*, note 2.
8. DELLA VALLE, *Lettere sanesi*, **II** (1875), p.200ff.
9. Rome, Biblioteca Vaticana, Vat. Lat. 9847, f.92r.
10. WAAGEN, G., *Kunstwerke und Künstler in England*, **I** (1837), pp.393–5.
11. *Catalogue of the Ottley Sale*, 30 June 1847, lots 1–11 and 81. Most of these were bought in.
12. *Catalogue of the Ottley Sale*, 1850, lots 55–57.
13. WAAGEN, G., *Treasures of Art in Great Britain*, **II** (London 1854), p.462.
14. COOR-ACHENBACH, G., 'Contributions to the Study of Ugolino di Nerio's Art', *Art Bulletin*, **XXXVII** (1955), pp.153–65.
15. Also noticed by CHRISTIANSEN, K., 'Fourteenth-Century Italian Altarpieces', *The Metropolitan Museum of Art Bulletin*, **XL**, 1 (1982), p.21.
16. VON TEUFFEL, C.G., *op. cit.*, p.65.
17. WHITE, J., *Duccio. Tuscan Art and the Medieval Workshop*, Thames and Hudson (London 1979), p.72.
18. VON TEUFFEL, C.G., *passim* and p.56, note 82. See also COOR-ACHENBACH, *op. cit.*, p.156.
19. HALL, M.B., *Renovation and Counter-Reformation: Vasari and Duke Cosimo in Sta. Maria Novella and Sta. Croce 1565–1577*, Oxford University Press (Oxford 1979), p.170.
20. The widths of the painted surfaces of the three panels all come between 56.3 and 56.7 cm at the base. Measurements kindly supplied by the Gemäldegalerie, Berlin.
21. When the spandrel angels (No.3378) were cleaned and restored in 1970, it was decided to detach the fragment from the main panel beneath. The latter was preserved for reference purposes and the fragment with the angels displayed independently. LOYRETTE (*op. cit.*, p.19, note 7) inexplicably rejects the Cook angels.
22. This similar treatment probably took place when the fragments were together in the Ottley Collection.
23. Gardner von Teuffel pin-pointed the discrepancies in the pose of the saints drawn by Baccanelli and the poses shown in the drawing, but these may perhaps be

explained by the reversing process when they came to be engraved by Catalano. In the engravings some adjustment is visible to the stigmata of S. Francis which seem to have started on his left-hand side and had to be altered to the right, and similarly to S. Louis' crozier. See VON TEUFFEL, *op. cit.*, figs.24 and 25.

24. The pose of the 'Virgin and Child' shown in the drawing is similar to Polyptych No.39 in Siena Pinacoteca. See STUBBLEBINE, J.H., *Duccio di Buoninsegna and his School*, Princeton University Press (Princeton, New Jersey 1979), fig.438.

25. The width of No.3377 at the base is 57cm. The width of No.3378 is 56.5cm. Strangely this panel has a rounded trefoil in the spandrel, while all the surviving equivalent panels have a pointed trefoil. VON TEUFFEL (*op. cit.*, p.65) wrongly states that No.3473 consists of two vertical elements; in fact, it is a single panel which has split in two and subsequently been joined.

26. Wrongly identified by Stubblebine as S. Clare (STUBBLEBINE, *op. cit.*, pp.164–8), but correctly by VON TEUFFEL, *op. cit.*, p.48, note 69; and LOYRETTE, *op. cit.*, p.19, note 14.

27. PARSHALL, L.B. (trans.), *Catalogue of Paintings, Thirteenth to Eighteenth Century*, Berlin, Staatliche Museen Preussischer Kulturbesitz (Berlin-Dahlem 1978), p.453.

28. The Daniel panel in the Johnson Collection, Philadelphia, is rejected by LOYRETTE (*op. cit.*, p.23, note 43). However, although the drawing shows a bearded prophet without a cap, rather than a young prophet (following the usual iconography for Daniel), the pose is the same.

29. See also STUBBLEBINE, *op. cit.*, p.166.

30. GRONAU, H.D., 'The San Pier Maggiore Altarpiece: A Reconstruction', *The Burlington Magazine*, LXXXVI (1945), p.144. The documents of 1371 for this altarpiece include payments for the transport of the altarpiece in separate sections and to a paver for boring holes, presumably when the altarpiece was being fastened to the pavement of the altarstep with buttresses.

31. DAVIES, *op. cit.*, p.533 and p.536, note 2.

32. HALL, *op. cit.*, p.154.

33. See a letter written in 1575 in A. Lorenzoni (ed.), *Carteggio Artistico Inedito di D. Vinc. Borghini* (Florence 1912), p.102; cited by DAVIES, *op. cit.*, p.536, note 2.

34. MOISÉ, F., *Santa Croce di Firenze* (Florence 1845), p.125, note 1.

35. See CANNON, J., 'Simone Martini, the Dominicans and the Early Siennese Polyptych', *Journal of the Warburg and Courtauld Institute*, 45 (1982), pp.69–93, especially pp.87–91, for a meticulous scrutiny of the evidence for the reconstruction of this altarpiece.

36. The width and format of the Isaiah panel in the National Gallery of Ireland, Dublin are identical to the Isaiah panel in the National Gallery (width 25cm). Although Stubblebine attributes the panel to the Brolio Master (STUBBLEBINE, *op. cit.*, p.181) an attribution to Ugolino di Nerio need not be ruled out (see COORACHENBACH, *op. cit.*, p.162, note 43) and one may tentatively suggest that this panel once formed part of the now lost altarpiece for Santa Maria Novella which seems to have been similar in format. See the article cited in Note 35.

## Cleaning and restoration

Anthony Reeve

A superficial examination revealed that all of the paintings were fragments. They had been cut into pieces of varying size and shape, and had undergone different types of restoration, especially in the frames. Not only had the fragments been partially re-framed, but the two angels in No.6486 had been falsely painted in the arch with the instruments of the Passion (Figs.8–10).

Further photographic and scientific examination was necessary to ascertain the full extent of restoration and re-framing. Infra-red photography was particularly useful in revealing restoration in the painted areas, whilst X-radiography was essential in analysing the structure of the original panels and the methods of fixing of the later framing additions. When all this information was available, the cleaning of the paintings could be begun.

### Cleaning

The painted areas and gold backgrounds of all three paintings were cleaned using solvent mixtures of acetone and white spirit in varying proportions; this readily removed the discoloured varnish and most of the restorations. In some areas of hard oil re-touching, the use of pure acetone and some scraping with a scalpel were required. The gold backgrounds were finally cleaned with ethyl acetate. The paint still had the remains of an old engrained dirt layer; this was removed using alternately a dilute mixture of ammonia in water, and white spirit, taking great care to avoid the original water-gilding.

#### *The pinnacles of Moses, No.6484 and David, No.6485*

On the pinnacles of *Moses* and *David*, it was now more apparent after cleaning where the later gilding, gessoing and framing additions began. Referring to the X-radiograph, the old craquelure in the angled pieces of framing was obvious, but also it was now evident that the paint craquelure continued under the vertical pieces of later framing. The nails holding the angled and vertical parts were also different, the former having larger heads and an uneven finish, whereas the latter were thinner and more evenly produced. At this stage, analyses were carried out by Ashok Roy of the Scientific Department on the bole and various ground layers (the results are summarized below). Acetone and water mixtures proved successful in removing the toning and later gold layers. Some damaged areas had a bright red pigmented simulated bole, although for the most part there was a thin brown bole layer. Both of these came away with water, and were thought to have a medium of gum or animal glue. The later white ground was readily removed with water and a little scraping. Original bole, gesso and linen canvas were found only on the angled parts of the framing as expected.

The sides had also been restored with what appeared to be a layer of toning mixed with gold or bronze powder brushed over a very dry, broken and cracked gesso. This was easily removed in the same way as the rest of the later gilding and revealed remains of an

**Plate 7**

Ugolino di Nerio,  
Moses (pinnacle from an  
altarpiece) (No.6484),  
after cleaning and restoration.



**Plate 8**  
Ugolino di Nerio,  
*David* (pinnacle from an  
altarpiece) (No.6485),  
after cleaning and restoration.



**Plate 9** (Below)  
Ugolino di Nerio,  
*Two angels* (spandrel  
from an altarpiece)  
(No.6486),  
after cleaning and  
restoration.





Figure 8 Moses (No.6484), before cleaning.

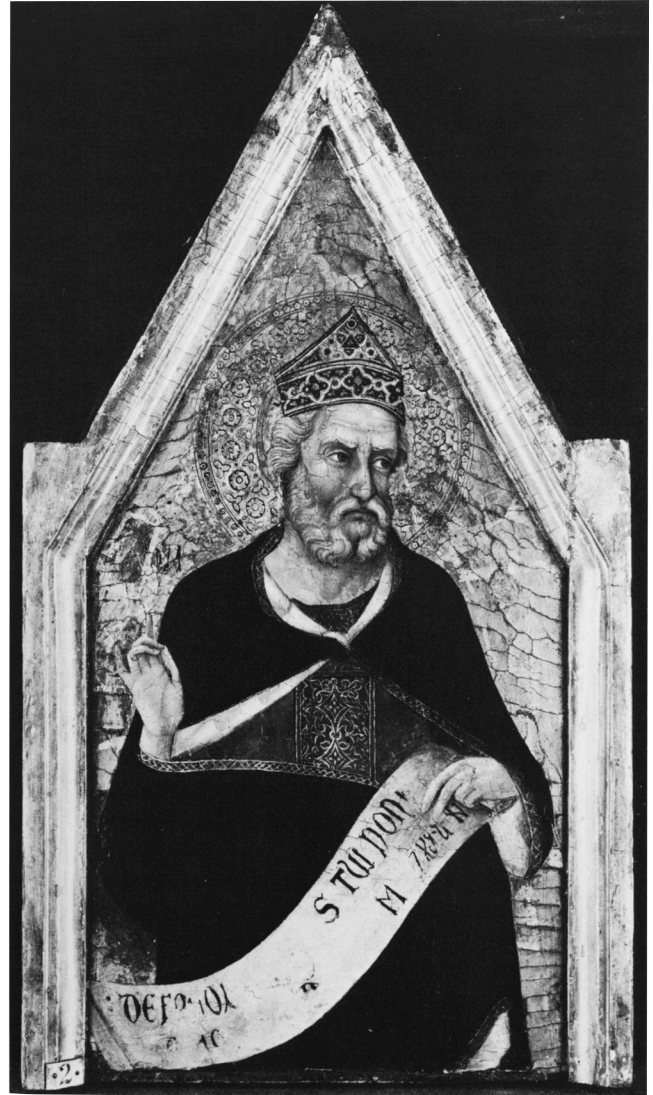


Figure 9 David (No.6485), before cleaning.



Figure 10 Spandrel angels (No.6486), before cleaning.

**Figure 11**  
*Moses* (No.6484),  
 side view of sloping  
 frame section after  
 cleaning.  
 One arrow shows the  
 linen canvas  
 used to reinforce  
 the panel and  
 moulding, and the  
 other shows the  
 position of possible  
 extra frame  
 adornments.



original coating of a rich deep red-brown layer over a weakly-bound gesso, a sample of which proved to contain gum or animal glue.

On the top sides of the angled parts of the framing (Fig.11) the red-brown colour merged with the overlapping orange-red bole and gilding. Some areas of linen canvas were exposed in previous damages. On the vertical sides the bare wood of the new additions was again revealed. Referring once more to the X-radiograph of the later vertical framing, the areas around the nails were cleaned sufficiently for them to be removed. The later additions came away cleanly revealing original gilding and gesso.

Wood samples were taken from the original thick panel and attached frame mouldings: all were found to be of poplar, whereas the additions were pine (see below). It can be assumed from the evidence of the protected painted sides and tops of the pinnacles that these were visible in the finished altarpiece, and there is also evidence of small holes, now filled, on the joint of the angled and flat areas on both sides of each pinnacle (Fig.11), possibly for the attachment of additional decorations to the frame. The backs of the panels both have traces of a red-brown colour similar to that on the sides, as well as numerous old screw and nail holes. A sample of gesso ground from the painted area was found to consist of anhydrite (burnt gypsum).

#### *Spandrel angels, No.6486*

The painted angels and exposed gilding were cleaned in the same manner as the pinnacles. The next stage was to clean the later painted area below the arched moulding to establish whether any of the original gold background, or punch-marks of the saint's halo, on the fragment of the main panel remained beneath. The same solvent mixtures as before were used, and these readily removed the overpaint and later gilding leaving a white ground layer which was shown to be chalk (gilder's whiting). This non-original ground was removed. Within the weave of the canvas beneath, the remains of a slightly harder, darker gesso layer was discovered, which was shown by X-ray diffraction analysis to be anhydrite, and evidently represented the original gesso ground applied to the main panel.

The X-radiographs confirmed those parts of the frame suspected not to be original, and these were cleaned and then removed.

It was now apparent that the spandrel of the angels was on a piece of wood of similar structure and dimensions to No.3378 (Plate 6, p.35 and Plate 9, p.47) although this lacked the arched framing. The arched framing on No.6486 is an original decoration and is built up of pure anhydrite mixed with short linen fibres and probably bound with animal glue (see Fig.12). A linen canvas extends over the whole area under the arch, over the initial layer of gesso making up the arch, and continues beneath the painting of the angels. The final gesso layer of the moulding comprises a mixture of anhydrite and gypsum, with bole and gilding on top. The composition of the upper gesso layer of the arch is the same as the gesso beneath the painted areas of the spandrel.

The removal of the left-hand outer frame exposed a large dowel hole (Fig.13) some 2cm in width and 11cm



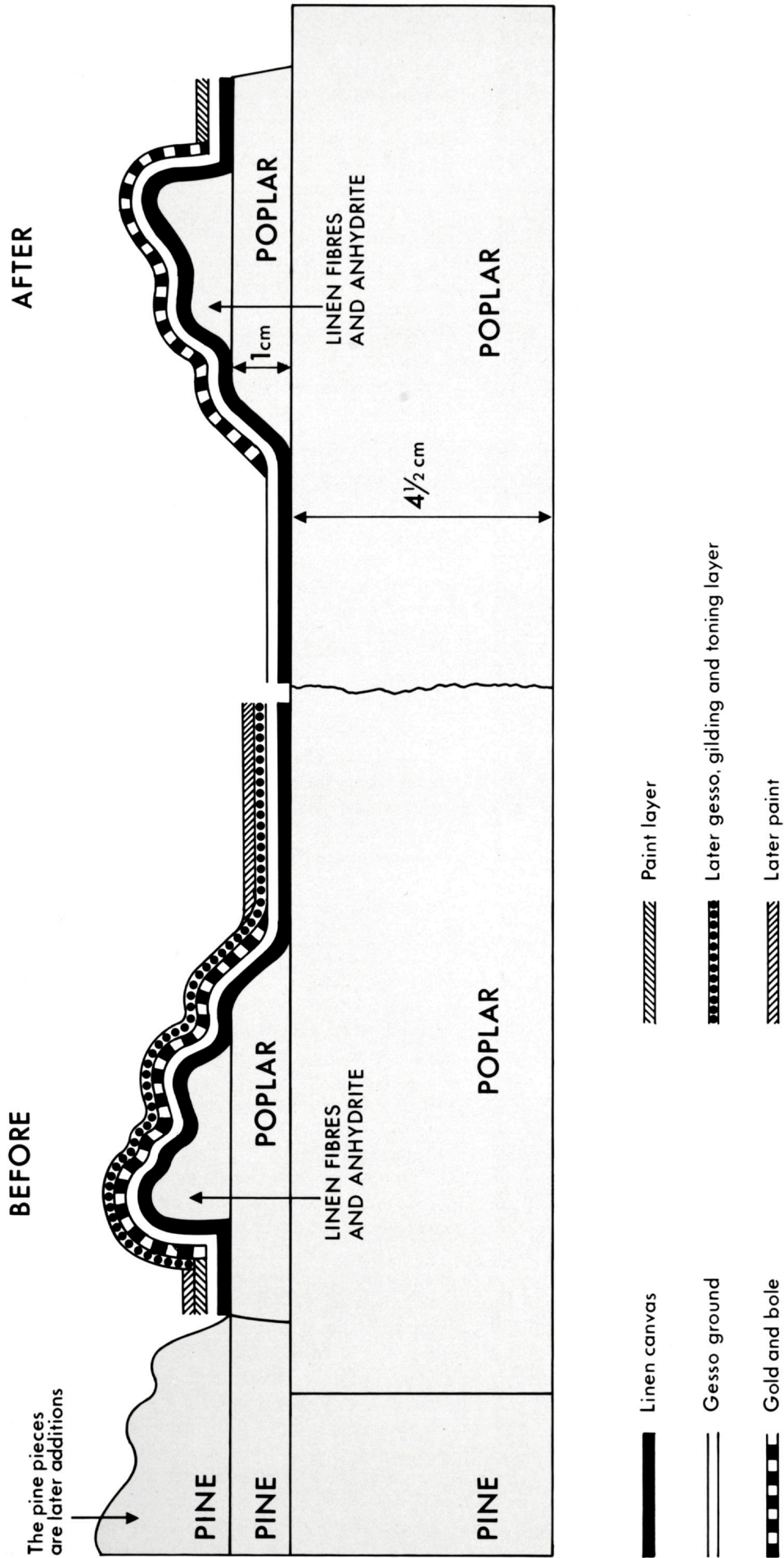


Figure 12 Diagram showing the structure of the spandrel angels (No. 6486) in cross-section, before and after removal of non-original elements.



in depth. Such dowels would have been substantial supporting elements between the panels.

### Restoration

It can be seen from the photographs taken after cleaning and before restoration (Figs.14–16) that there are considerable losses of paint and gilding. Restoration was carried out in a manner intended to reduce but not to disguise the distracting effects of the damage, by replacing lost original outlines and by broad indications of colour. Gold areas were reconstructed using the original technique of gesso, bole and water-gilding, and the surface artificially aged. The punch-marks and decoration of the gold were only minimally indicated.

Restoration was carried out using Paraloid B72, with egg tempera as underpaint in the large losses. The painted areas were varnished with Ketone N. The missing areas in the arch of the spandrel were reduced with watercolour.

The three fragments are shown after restoration in Plates 7–9 on p.46 and p.47.

### Analyses of grounds and wood identifications

A number of samples of wood, gesso and of the original reinforcing canvas applied to the main panels were taken during conservation treatment of the National Gallery fragments in order to understand fully the construction of the altarpiece and its preparation for painting. In addition it was necessary to identify those elements which did not form part of the original structure.

Thin transverse sections of wood, and carefully separated canvas fibres were identified by standard microscopical means. Samples of the ground materials were analysed by X-ray powder diffraction, and the approximate proportions of the different components in the samples assessed from the line intensities of the powder patterns. These results are summarized below:

#### *Spandrel angels, No.6486*

1. The thick plank of wood of the main panel and its attached thin spandrel were of poplar.
2. All later framing additions were of pine.
3. The canvas embedded in the gesso ground of the main panel was linen.
4. A pure white layer used as a ground for later gilding was chalk.
5. The 'moulding' of the spandrel had initially been built up with anhydrite (burnt gypsum) reinforced with flax fibres, and presumably bound with animal glue, whilst the finishing layer in which the detailed shape had been worked is made up of a mixture of anhydrite and gypsum in roughly equal proportions (see Fig.12).
6. The gesso ground from the interstices of the canvas weave on the fragment of the main panel was anhydrite containing only traces of gypsum.
7. A sample of ground from the edge of a painted area on the spandrel was a mixture of anhydrite and gypsum, and had presumably been applied with the final layer of the moulded arch.

#### *Spandrel angels, No.3378*

This fragment was examined to compare with No.6486 above. The wood of the spandrel and its main panel were also of poplar, with later additions of pine. (These had been retained from the restoration of the fragment in 1970.) A linen canvas was also present in the gesso ground of the main panel, although the spandrel arch itself had not survived. As with No.6486, ground material taken from the weave of the canvas on the section of main panel proved to be virtually pure anhydrite.

#### *Pinnacles, Nos.6484 and 6485*

The panels and mouldings were shown to be of poplar, and like the spandrels all later additions were pine. A sample of ground from the *David* (No.6485) was shown to be pure anhydrite.

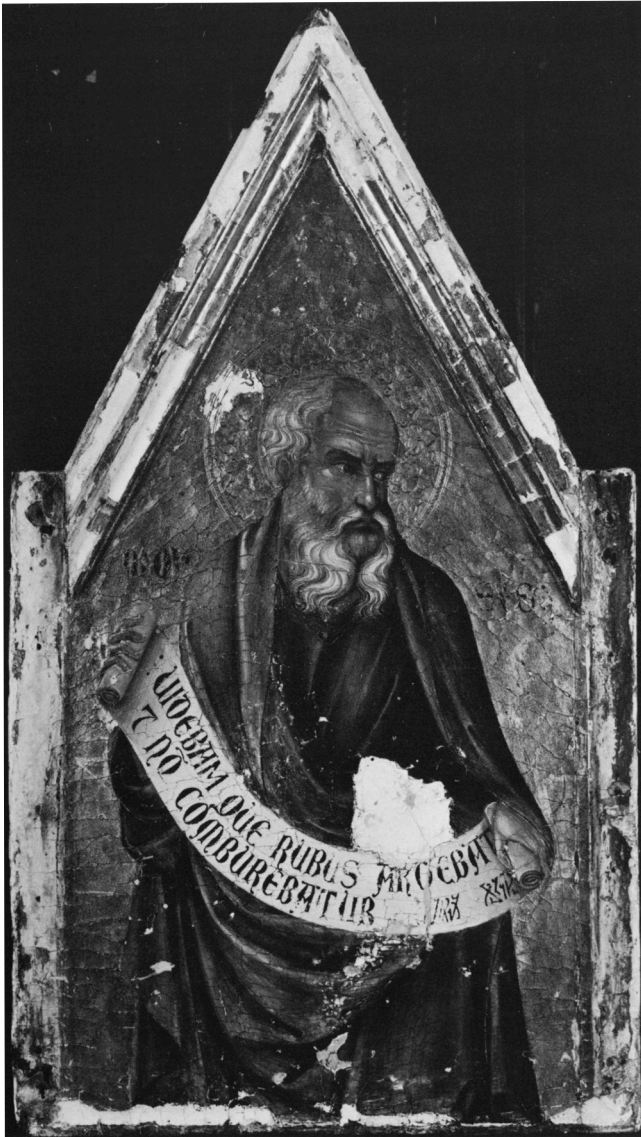


Figure 14 *Moses* (No.6484), after cleaning, before restoration.

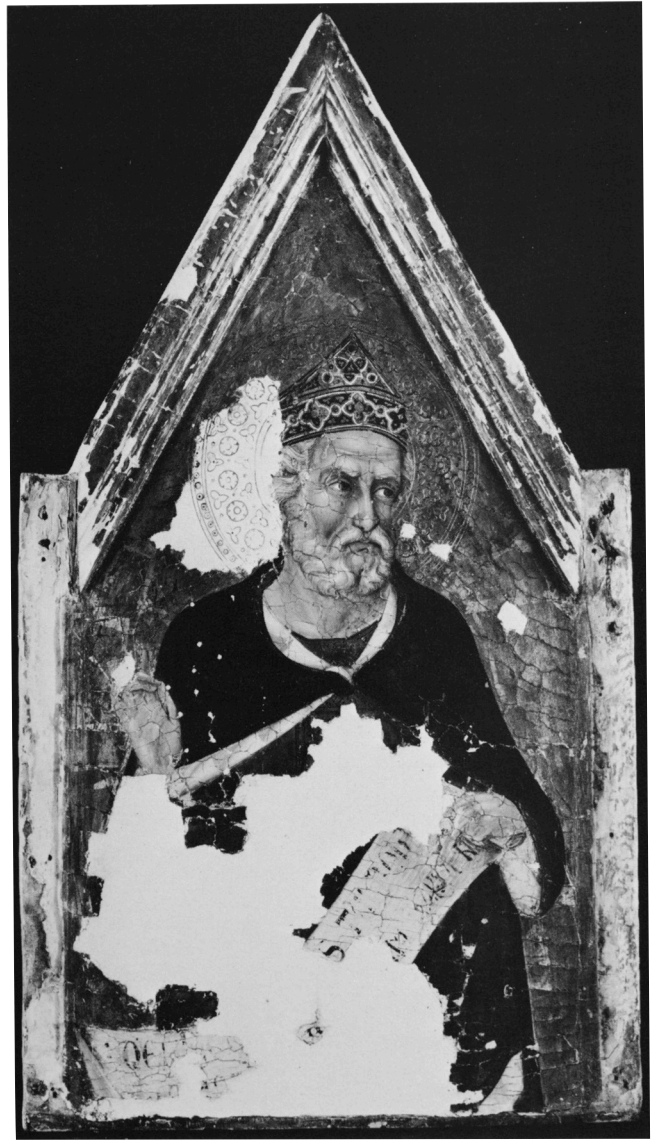


Figure 15 *David* (No.6485), after cleaning, before restoration.



Figure 16 *Spandrel angels* (No.6486), after cleaning, before restoration.