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Patterns of Arrangement in Italian Fresco Cycles: A Computer Database

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The purpose of this paper is to publicize a research tool I have developed to analyze art historical material using the IBM 3081 main frame computer. To explain how I came to this point, I must be somewhat autobiographical. My field of specialization is 15th-century Italian painting and in particular the work of Piero della Francesca. A few years ago, I began to confront what is considered the major problem of Piero's fresco cycle of the 'True Cross in S. Francesco in Arezzo, namely the extraordinarily 'out of order' arrangement of the narrative sequence. This cycle depicts the story of the Cross, generally following the 13th-century version in the *Golden Legend*, by Jacobus del Voragine.

Piero's cycle is said to be 'out of order' because it does not 'read' according to ordinary expectation, that is, from left to right and from the top down, like the page of a book. Rather, the visual sequence starts on the right and reads right to left on the top tier, and left to right on the second. It jumps to the altar wall and then jumps back to the third tier of the right wall. Moving to the left wall, the sequence continues on the middle tier, moves down to the bottom and ends at the top in the lunette. Many scholars have pointed out that the arrangement, although out of order from the point of view of narrative, creates a pattern of balance and harmony: the beginning and end of the story appear at the tops of both walls; scenes on the middle ranges show miracles of queens; the bottom tiers display battle scenes of Holy Roman Emperors. While the truth of these observations is striking, rather than solving the mystery, it brings up further, quite fundamental questions. For example, what do we mean, when speaking of visual narrative, by the term 'order'? Do we mean simply 'following the written version' or are the criteria for visual narrative actually different from those we use for literature? If there is a separate element that we may call 'visual order,' what was its development and who determined it? What were the 'official' functions of visual order; what rôle did artists play in fulfilling these ideals? Moreover, in the 15th century, was it possible for an artist to arrange or 'rearrange' a reli-

gious story painted in the chancel of an ecclesiastical building for his own aesthetic reasons?

When I turned to art historical literature for answers, I discovered that the questions had not been taken up in any coherent fashion. Indeed, currently there is no history of the disposition of narrative cycles in the Italian Renaissance, or for that matter, for any period. Still, I had to grapple with the problem if I were to pursue the questions in relation to Piero della Francesca. And I began to collect material. In no time at all, it became evident that this task was enormous, and if it were to have any sense of accuracy or cohesion, it could not possibly be done by hand. At this point I turned to the computer for aid.

My first step was to design a system in which the following fresco cycle information could be stored:

- i – Identity of country, city, church (and monastic order), location in church, religious dedication of area, where the cycle appears; subject of the cycle, artist(s) and assistants, dates of execution.
- ii – Description of architectural surfaces used for decoration (vaults, lunettes, clerestory space, rectangular fields); number and location of windows; type of roofing.
- iii – Description of narrative sequence: starting point, direction of horizontal and/or vertical movement by wall, bay, tier; irregularities of sequence.
- iv – Titles of each scene, listed in literary order, indicating: narrative mode; location (wall, tier, position on tier); viewing point for represented architecture and landscape, groups of figures, and direction of represented light-flow.
- v – Characteristics and anomalies of the cycle, in telegraphic prose.
- vi – Indication of inscriptions, signatures, and titulae.
- vii – Subject, artist, date, location of altarpiece associated with the cycle, with indication of narratives on: wings, pinnacles, and predelle; notation of (non-narrative) figural representations on ceilings, pilasters, borders, dados, floors, and windows.
- viii – One bibliographic reference.

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IFIDAPT DOMF JOHN THE BAPTIST ANON MOSAICIST 1 701
1290-1299OT X JOHN BAPT 2590 7515 115 601
CREATION 151102 2 CREATION OF ADAM 151202 2501
CREATION OF EVE 151302 1 TEMPTATION OF ABRAHEVE 151402 2502
GOD RPPREHANDING ADAM EVE 151500 1 EXPULSION 151610 1501
ADAM AND EVE WORKING GOD SKY 151701 1 SACRIFICE OF CAIN AND ABM 151822 2504
CAIN KILLS ABLE TRFE 151903 1 LAMPOH KILLS CAIN 151901 1505
GOD COMMANDS NOAH ARK 151110 3 NOAH BUILDS ARK SAVING 151210 1506
NOAH FAMI ANIMALS ENTER ARK 151310 1 DELUGF DOVE REQRS BNC HAIFR 15141 1507
JOSP DREAM OF 15213 1 JOSP TELLS PARENTS CF DREAM 15222 1508
JOSP TELLS BROTHERS OF DREAM 152301 1 JOSP SOLD BY BROTHERS 152470 1509
JOSP ANNUN OF DEATH FALSE 152530 1 JOSP JOURNEY OF 152610101510
JOSP POTIPHER B4 152710 1 JOSP ACCUSED BY POTIPHAR WLP 152820 1511
JOSP IN PRISON 152920 3 DREAM OF PHARAOH 152920 3512
JOSP INTERPRETS PHARCAH DREAM 152120 3 JOSP VICEROY OF PHASACH 152220 2513
JOSP STORING GRAIN 152710 3 JOSP BROTHERS VENERATED BY 152430 3514
JOSP FATHER HOBBSES 152500 3 ANNUNCIATION BVM DOVE RAYS 153110 1515
VISITATION 153210 2 NATIVITY X ANNUN SHEPS 353322 2516
MAGI ADOPTION 153470 2 MAGI DREAM OF ANGEL SKY 153570 2518
MAGI RETURN BOAT 153620 1 PRESENTATION X PRIEST NOTES 153710 2519
JOSEPH FIRST DREAM STLABSCP 153801 1 FLIGHT INTO EGYPT ONR SCM 153901 1519
INNOCENTS MASSACRE HFRON 153910 1 LAST SUPPER SOP TO JUDAS 151120 2520
KISS OF JUDAS BALCHMG EAR 153200 2 CRUCIFIXION SWOON LEFT 153312 2521
LANTASATION HEAD LEFT 153470 3 THRES MARKS AT TOMR LANG CL 153533 3522
ZACHARIAH ANNUNCIATION 154130 2 JBAP BIRTH NAMING 154203 1523
JBAP INF DEPARTS FOR DESERT 154301 1 JBAP YOUNG TEACHING S MEN 154401 2524
JBAP BAPTIZING MULTITUDES 154502 2 ECCE AGNUS DEI X EGI 154401 1525
X BAPTISM 2 ANGELS 154702 2 JBAP REPARING HIRODAPHRONIAS 154820 2526
JBAP IN PRISON 154920 2 JBAP SENDS DISCIPLE TO X 2 154921 1527
X WORKS MIRACLE B4 JOHN DISC 154104 3 HEPD TEAST OF DANCING DEED 154203 3528
JBAP DECCLATION SAYSME DEFS 154302 3 SALOMP BELIVERS HEAD JBAP 154420 2529
JBAP FUNERAL HEAD CN 15453072
4TTERS 4PASSIONS MUCH APOCXY ENCHAS MAGI COSMOLOGYELI IN APS2 DIFTY GANGEIS A01
JOSKE HUFCK 1962 BISS DAS PROGRAMM DEP 02
    
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FIGURE 1.

The storage system was made into a computer file under the title 'Narrart'; at present, approximately 200 cycles have been entered, forming a database of more than 3000 records concentrated between the years 1260-1600, with a few major examples from the Early Christian and Romanesque periods. An example of a database page is Fig. 1; formatted, it is seen in Fig. 2.

The database is linked to a data management program called SAS (Statistic Analysis System), chosen for its ability to handle long strings of different kinds of information. SAS will list, count, compare, chart, and graph any and all variables in any combination. With proper programming one can ask, for example, the following kind of question: what are the scenes dating between 1300 and 1400, in which the represented light comes from the right, which are on left wall of a chapel where the wall behind the altar is pierced by window(s)? In art historical terms, the question would be: list the scenes in which the direction of the represented light corresponds to the source of real light. The answer to this question as a listing and as a bar chart is seen in Fig. 3. It was created by the computer in less than a second.

I continue to work on the database, to edit and expand it. With the consultation of colleagues who study the Middle Ages and the Baroque period, hopefully in the future it will cover the entire history

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COUNTRY: ITALY
CITY: ROME
CHURCH: VATICAN
DATE: 1496-1490
CYCLE: LIVES SSSTEVEGLAVR
LOCATION: NICCOLINA CHAPEL
DEDICATION: SSSTEVEGLAWRENCE
ARTIST: PRA ANGELICO
ASSISTED: +
INSCRIBED: YES
NUMBER OF SECTIONS 12

ORGANIZATION OF WALLS
WALL 1 WALL 2 WALL 3 WALL 4 WALL 5
(LEFT) (ALTAR) (RIGHT) (OP ALTAR) (CEILING)
WINDOWS ONE WIND NO WINDS TWO WINDS NO WINDS
LUNETTE NO NO NO NO
CLERESTORY NO NO NO NO
RECTANGULAR YES NO YES YES
NUMBER RECTANGLEW + 3 3
MOSAIC BATS + + + +
CEILING TYPE SADDLE

ORGANIZATION OF NARRATIVE
STARTING WALL RIGHT OF ALTAR
VERTICAL MOVEMENT DOWN FROM TOP
NUMBER OF BAYS IN VERTICAL MOVEMENT +
VERTICAL MOVEMENT WALL SEQUENCE + + + +
NARRATIVE READS LEFT-RIGHT

HORIZONTAL MOVEMENT WALL SEQUENCE WALL3 WALL4 WALL1 WALL3 WALL4 WALL1
SUBJECTS OF SCENES:
SSTEV RECEIVMS DECANATO SPET
NARRATIVE NODE: CONTINUOUS
LOCATED ON WALL: RIGHT OF ALTAR
POSITION ON TIER: 1
ON LEFT OR 3PR LPT
ARCHITECTURE: SN PR LEFT

SLAVRE ON GRILL FMP ABOVE
NARRATIVE NODE: CONTINUOUS
LOCATED ON WALL: LEFT OF ALTAR
POSITION ON TIER: 2
ON RGT OR 3PR LPT
ARCHITECTURE: SN PR LEFT
LANDSCAPE: +
MAIN FIGURES: COMING FROM RIGHT
MOVE LEFT
    
```

```

ANOMALY: DADD GREEN TITIL NEW MONUMENTALIZED GRANDUR ARCHITECT OF FUTURE PERSPRCPLOOR
ANOMALY: TINY ACTHIAL SPACE BOT ETIAN ARRANGEMENT
ANOMALY: SS IN CORNERS WL1 RG DNATVR LP CHRYSOS WL3 LPT ANASTAS RGT THOM SQUIN EGV
ALTARPIECE: YES
LOCATION OF ORIGINAL: LOST
PAINTER: PRA ANGELICO
DATE: 1497C
SUBJECT: DEPOSITION
NARRATIVE ON: WINGS: NO
PILASTERS: YES
DOPPELERS: YES
DADO: .
WINDOW: .
CEILING: YES
FLOOR: .
    
```

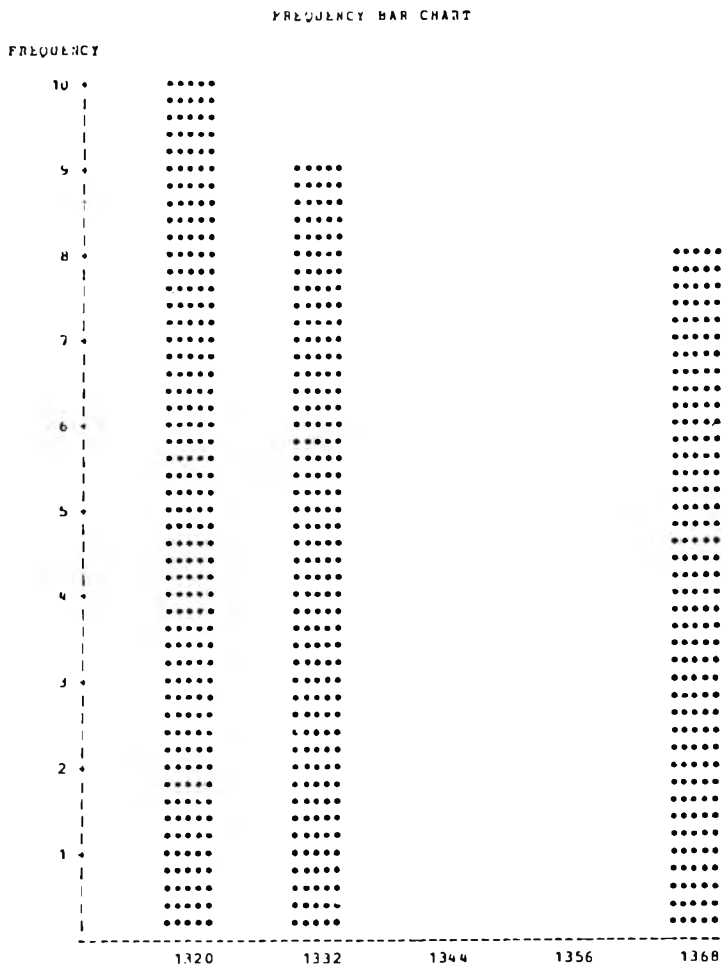
BIBLIOGR: POPEHENNESSEY PRA ANGELICO

FIGURE 2.

of western wall-painting. The question-asking project is in its infancy. Recording the cycle sequences on video-tape is one of the next steps, which in turn will make possible 'windowing' visual material into the database for simultaneous viewing. Public access to the database is one of my ultimate goals.

The rest of this text is a preliminary report on some findings that resulted from the mere compilation of material in order to enter it into the computer file.

Scenes on the wall left of the altar with light coming from the right in chapel with windows on the altar wall.



OBS	CHUNCH	LOCAT	SUBJECT	DATE	ARTIST
1	SCRC	BARDI CHAPEL 1ST STR	SPRAN RENOUNCES PATHEREBISH	1315-1320	GIOTTO
2	SCRC	BARDI CHAPEL 1ST STR	SPRAN DEATH APOTHEOSIS	1315-1320	GIOTTO
3	SPRAN	MAGD CHAPEL LOWER	MAGD DRIES X PELI SIMON	1320-1321	GIOTTO ATTR
4	SPRAN	MAGD CHAPEL LOWER	X RAISPS LAZARUS	1320-1321	GIOTTO ATTR
5	SPRAN	MAGD CHAPEL LOWER	MAGD LAST COMMUNION CLIPATA	1320-1321	GIOTTO ATTR
6	SPRAN	LOWERSMARTIN CHAP	SMART DIVIDES CLOAK AT AMIEN	1320-1328	SIMONE MARTINI
7	SPRAN	LOWERSMARTIN CHAP	SMART X APPEARS TO AS BEGGAR	1320-1328	SIMONE MARTINI
8	SPRAN	LOWERSMARTIN CHAP	SMART RAISE DEAD BOY CHARTRE	1320-1328	SIMONE MARTINI
9	SPRAN	LOWERSMARTIN CHAP	SMART ROSE DREAMS SMARTS DEATH	1320-1328	SIMONE MARTINI
10	SPRAN	LOWERSMARTIN CHAP	SMART FUNERAL HEAD LPT SING.	1320-1328	SIMONE MARTINI
11	SCRC	BARONCELLI CHAP STR	JOACHIM IN WILDERNESS	1330-1334	TADDEO GADDI
12	SCRC	BARONCELLI CHAP STR	BYM BIRTH OF MIDWIVES BATHIN	1330-1334	TADDEO GADDI
13	SCRC	BARONCELLI CHAP STR	BYM PRESENTATION OP STEPS	1330-1334	TADDEO GADDI
14	SCRC	BARONCELLI CHAP STR	BYM BETHOTHAL OP GARDENWALL	1330-1334	TADDEO GADDI
15	SCRC	PERUZZI CHAPEL	ZACHARIAH ANNUNIC MUSICIANS	1330-1336	GIOTTO
16	SCRC	PERUZZI CHAPEL	JBAPT BIRTH NAMING	1330-1336	GIOTTO
17	SCRC	PERUZZI CHAPEL	HEROD FEAST DANCE SALOMEHEAD	1330-1336	GIOTTO
18	PARG	CHAPEL	PRINCE MANSILLE WIPE ISLAND	1336-1338	GIOTTO FOLLOWERS
19	PARG	CHAPEL	JSAP NAMINGS OP	1336-1338	GIOTTO FOLLOWERS
20	SCRC	RINUCCINI CHAP SACRIS	JOACHIM EXPULSION	1365-1369	GIOVANNI DA MILANO
21	SCRC	RINUCCINI CHAP SACRIS	JOACHIM IN WILDERNESS	1365-1369	GIOVANNI DA MILANO
22	SCRC	RINUCCINI CHAP SACRIS	GOLDEN GATE MEETING	1365-1369	GIOVANNI DA MILANO
23	SCRC	RINUCCINI CHAP SACRIS	BYM BIRTH MANY MIDWIVES	1365-1369	GIOVANNI DA MILANO
24	SCRC	RINUCCINI CHAP SACRIS	BYM PRESENTATION STEPS	1365-1369	GIOVANNI DA MILANO
25	SCRC	RINUCCINI CHAP SACRIS	BYM MARRIAGE BETHOTH ERK ROD	1365-1369	GIOVANNI DA MILANO
26	SGIOR	ORATORIO DI	SGEORGE AWAITS DECAPITATION	1377-1384	ALTICHIERO
27	SCBC	CASTELLANI CHAP RTRA	ANTHONY BEATEN BY DEVILS	1385-1390	AGNOLO GADDI (STARNINA)

FIGURE 3.

The Early Christian habit of using the walls of the great basilicas as the arena for public religious instruction resulted in the development of certain patterns of narrative arrangement that became prototypical. Depending on factors of topography, historical circumstances and liturgical practice, cycles were disposed in superimposed tiers on the long nave walls in various ways. Evidence seems to point to the fact that, in a majority of cases, the narratives begin on the right wall (as one faces the apse), on the top tier, at the apse end of the building. Patterns of arrangement during the Middle Ages then included: parallel movement from the apse to the entrance on both side walls, moving down tier after tier, as at St. Peter's. The right wall, which generally held Old Testament scenes, thus read left to right, and the left wall which showed New Testament scenes, read right to left. A second pattern, again starting on the right wall, was one of continuous movement, reading left to right, from the apse to the entrance on the right wall, and from the entrance to the apse end on the left. The narrative thus wrapped around the nave, moving down tier after tier, as at S. Giovanni a Porta Latina. In these cases, the Old Testament scenes appear on the upper tier(s), with the New Testament represented below.¹

Several irregularities in scene size seem to have occurred in Old St. Peter's. We know of these aberrations from later copies and therefore may count them as having become traditional. The pictorial fields were enlarged for the *Entry into Jerusalem* (the beginning of Christ's Passion), the *Crucifixion* (the climax), and the *Ascension* (the end of his life on earth). The cycle at S. Paolo fuori le Mura used another type of 'irregularity' which also seems to have left its legacy. The left wall displayed the Acts of St. Paul in forty-four scenes. At a certain point, the consecutive order departed from Biblical numeration and became 'out of order.'² Only after seeing reflections of such characteristics in later works do we become aware that they are not random anomalies. Once noted, they become part of the larger history of disposition and may be studied and analyzed.

Moving rapidly forward in time, we will take note of continuities and innovations in the realm of narrative disposition in 13th- and 14th-century cycles. Dr. Giuseppe Rocchi has observed that the original orientation of the Lower Church of Assisi was the reverse of the present, i.e. the 'apse' was toward the east.³ If this was indeed the case, the nave frescoes in the two parallel sequences, Christ's life on the north

wall, and St. Francis' on the south, would have repeated the double parallel apse-entrance pattern of Old St. Peter's.

Reference to the Early Christian protocols was even stronger in the arrangement of the nave decorations in the Upper Church of Assisi. An Old Testament cycle is on the right wall, starting at the apse end, occupying the upper two tiers, with the narrative moving from left to right; a New Testament cycle is on the left in parallel disposition, with the narrative moving right to left (and scenes from the post-Passion continuing right to left across the entrance wall). The Life of St. Francis, on the other hand, which occupies the third tier down, proceeds in the alternate mediaeval format, namely the left to right wrap-around pattern. The achievements of this interlocking arrangement are manifold. Suffice it here to say that the *Death of St. Francis* appears precisely under the *Death of Christ* in the Crucifixion, expressing the '*Franciscus alter Christus*' concept most directly.

One of the major innovations of the 14th century was the institution of the private chapel. One of the first and of the greatest of these was, of course, the Scrovegni Chapel painted by Giotto between 1305 and 1310. The Arena Chapel was thus a spearhead on a social as well as stylistic level. Its conformation, however, and the arrangement of its double cycle of the Virgin and Christ are rooted in the Early Christian protocols. The narrative begins on the upper tier of the right wall at the apse end. It proceeds regularly around from left to right in a triple wrap-around. The number of scenes differs on each wall and to step the narrative down to the next lower tier there is a regular pattern of transpositions on the triumphal arch. Giotto's organizational innovations, therefore, must be found in the subtle ways he adjusted the traditional scheme to the architectural exigencies of his particular building.

While the grand scale of the Arena chapel was out of the ordinary, the institution of private patronage became the characteristic of Trecento artistic commissions. Usually, such family chapels were housed in one bay in the side aisle of a church. The artists, Giotto himself included, were thus given a more compressed architectural environment in which to distribute their narrative sequences, and they dealt with this new challenge in a variety of ways.

In the Bardi Chapel, S. Croce, Florence, Giotto arranged the narrative of St. Francis' life as follows: it starts on the upper left, jumps to the upper right, moves down to the second tier, starts right, jumps left, moves down to the lowest tier left and jumps right. We could call this arrangement a 'zigzag' but a better term would be an *aerial boustrophedon*. The definition of this strange word, '*boustrophedon*,' is: turning like an ox in plow. It has long been used to describe the few early Classical inscriptions that zigzag left to right and then right to left and back again. We shall soon see that boustrophedonic organization was a major characteristic of visual cycles as well.⁴ I

1 See Luba Eleen's contribution to this subject in the present volume.

2 Professor Herbert Kessler will discuss the significance of this arrangement in a forthcoming paper.

3 *La Basilica di San Francesco ad Assisi: Interpretazione e rilievo* (Florence, 1982), and his present contribution.

4 Cf. Florens Deuchler, 'Le Sens de la lecture, à propos du boustrophédon,' *Études d'art médiéval offertes à Louis Grodecki* (Paris, 1981), 251-58.

suspect that Giotto used it here to give a sense of Francis' peripatetic life, and simultaneity to the final two scenes, the *Death of St. Francis*, on the left, and *Visions of Francis' Death*, on the right.

Something of the same approach is used again in the Magdalen Chapel, Lower Church, Assisi, but now in a pattern I call the *linear boustrophedon*. The narrative starts on the left wall, lower tier; it moves left to right wrapping around both walls. On the entrance wall, it steps up to the second tier and reverses direction, now moving right to left, ending back on the left wall above the first scene. The result in this case is placement of the scenes in which the Magdalen is miraculously transported through the air high up on the wall, identifying physical location with content.

Again in the Lower Church of Assisi in the St. Martin Chapel, Simone Martini refers to Early Christian protocols by starting his narrative at the altar end of the chapel on the right wall (*St. Martin's Investiture*). The narrative on the lowest tier is arranged in a *Cat's Cradle* pattern: it moves from right back to left front, and from left back to right front. This pattern places two military scenes together on the lower right, and two apparitions of Christ to the saint together on the lower left. The saint's own miracles are on the tier above, right and left, and his death, funeral, and appearance in heaven, are on the topmost tier.

An ideal demonstration of boustrophedonic arrangement is found at mid-century in the Collegiata in San Gimignano, on the right wall of the right side aisle. Attributed to Barna da Siena, the narrative of the life of Christ starts on the lunette level and reads right to left for six bays. On the second tier, the direction reverses and reads left to right, ending with a double size *Entry into Jerusalem*. Not only does this element reflect the Early Christian Vatican source, it says so visually by including the figure of St. Peter holding the keys! The third tier returns to reading right to left, and arrives at an oversize *Crucifixion*, four times the size of a regular scene, again in the manner of Old St. Peter's. The last four scenes are a unit, with the earth-bound scenes of the *Entombment* and the *Descent into Limbo*, on the bottom, and the soaring miracles of the *Resurrection* and the *Ascension*, above. It has often been suggested that the arrangement at the Collegiata owes much to the arrangement of panels on the back of Duccio's *Maestà*. Indeed, one should also relate the double size vertical of Duccio's *Entry into Jerusalem*, as well as the oversize *Crucifixion* and *Ascension*, to the Early Christian protocols. It is even possible that the boustrophedonic organization in both cases had something to do with transferring the double wrap-around pattern of the basilica to the flat surface of a panel or a single wall.

At the end of the 14th century we find the first major example of an organization I have designated as the *festival arrangement*. With this term I refer to representations of biblical occurrences which depict

not the narrative situation but the liturgical feast that celebrates the event in the eschatological realm.⁵ The cycle of the *True Cross* by Agnolo Gaddi in the chancel of S. Croce, Florence, is arranged on two opposing walls. The story begins on the right, in the Early Christian manner, at the top and proceeds downward. It then jumps to the top of the left wall and similarly reads down to the bottom. The overall arrangement may be described as *straight-line-vertical*. The festival aspect comes from the fact that the scenes on the right wall relate to the feast of the *Invention of the Cross*, celebrated on May 3 (not by chance coincidental with the date of the founding of S. Croce in 1294), as opposed to the scenes on the left wall which refer to the feast of the *Exaltation of the Cross*, celebrated on September 14.

I shall finish this brief survey with some very simple observations about a few very famous 15th-century cycles.

Frescoes in the Bartolini Chapel, S. Trinita, Florence, painted about 1425 by Lorenzo Monaco, depict the Life of the Virgin on all four walls. The arrangement is an aerial boustrophedon. Added here is a new element: the subject of the altarpiece, also by Monaco, enters into the narrative sequence of the chapel as whole. The main panel with the *Annunciation* fits after the *Marriage of the Virgin* on the second tier of the right wall, and the predella continues the sequence from the *Visitation* through the *Flight into Egypt*. The cycle then continues on the chapel walls.

As one might suspect, the Brancacci Chapel is as progressive in the realm of narrative disposition as in the realms of style, perspective and iconography. It combines for the first time a number of elements of the history we have been sketching. First, we find direct references to the Early Christian protocols. The location of a Life of St. Peter in the right transept wing was, after the 7th century, that of Old St. Peter's and traditionally followed thereafter (e.g. Duomo, Monreale; Upper Church, Assisi). The combination of Old Testament subjects starting on the right wall (here the *Temptation of Adam and Eve*), with Acts of the Apostles, as we have seen, was also traditional. The Acts themselves arranged ideologically and not in biblical sequence recall the arrangement in S. Paolo fuori le Mura. Second, on the bottom tier of both sides walls, the arrangement of scenes is basically, and rather inventively, 'festival.' Scenes on the left wall are set in Antioch and refer to the Feast of February 22, the *Chairing of Peter*; those on the right are set in Rome, and refer to the feasts of August 1, *The Liberation of Peter*, and June 30, *Peter's Martyrdom*.

When we now look again at Piero della Francesca's Arezzo cycle we can see that essentially it continues

⁵ This terminology depends on that used for Byzantine art where cycles are arranged according to the calendar of liturgical feasts or festivals. Cf. Otto Demus, *Byzantine Mosaic Decoration* (London, 1948), ed. 1976, 22-26.

Masaccio's innovative approach to cycle organization. Ostensibly, the general arrangement is straight-line-vertical. The story starts on the right wall in Early Christian fashion and generally moves down. However, the pattern is not repeated on the left wall. Parts of the sequence are boustrophedonic but not consistently so, for the directions of reading skip and jump. There are certain references to *festival arrangement* but not in the recently established way: the major scenes of *Invention* and *Exaltation of the Cross* are all on the left wall. Unquestionably, Piero took his scenes out of narrative sequence for ideological reasons, and by making side to side oppositions, he created a kind of internal typology. His cycle thus fits into the development of patterned arrangements. At the same time, it departs from this development in ways that help to define some of its mysterious attraction. Piero's achievement gave classical balance to the great events of Christian history thereby equating classical beauty with Christian truth. His cycle of the *True Cross* may thus be called the first Christian epic, created in visual terms and predating by more than a hundred years the accomplishment of this feat in the realm of poetry.⁶

6 Cf. Torquato Tasso's theory of epic (*Discourses on Heroic Poetry*, trans. Cavallini and Samuel, Oxford, 1973), and his *Gerusalemme Liberata*, of 1574.

One final example will bring us back to our point of departure, the Early Christian patterns of arrangement. The 15th-century scenes in the rectangular tiers on the walls of the Sistine Chapel oppose Old and New Testament scenes in the parallel apse-to-entrance pattern. Michelangelo's ceiling too, generally follows this arrangement. Thus, although there were obvious modernizations and modifications, the Papal Chapel of the 1480s harked back quite specifically to the fresco patterns of the infant Mother Church.

I have given a brief summary of some of the observations made possible simply by the compilation of the database. The patterns of arrangement that have thus come to light may now be studied historically. The statistical analysis (using the SAS program) will doubtless lead into areas of research yet to be discovered. Although I am still at the primitive stages of this study, I have seen enough results to convince me that this new tool offers a genuinely new approach to art historical data.