Evidence of the Emerging Trombone in the Late Fifteenth Century: What Iconography May Be Trying to Tell Us[1]

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Determining the date of the invention of the trombone is a question that has occupied a number of scholars for the better part of a century. At first a question of importance primarily to musicologists and organologists, it has acquired a new urgency in the last few decades with the practical involvement of musicians performing fifteenth-century music on period instruments. While a few skeptics have expressed doubts, most researchers seem comfortable with the theory, first advanced by Curt Sachs, that the immediate precursor of the trombone (with its "double" or "U" slide) was a form of slide trumpet with a telescoping mouthpiece extension or "single" slide.[2] There seems to be general agreement, too, that the first reliable evidence of the trombone with U-slide comes from just before the closing decade of the fifteenth century, but that it did not immediately eclipse its progenitor; indeed, the slide trumpet continued in use alongside the trombone almost through the eighteenth century. Preceding the first reliable evidence of the U-slide, however, are a few bits of what we might call "unreliable" evidence, whose import is controversial. It is some of these bits, along with some of the scholarly comment they have engendered that are the focus of this study.

In the absence of actual specimens of instruments, our main window into the past concerning their physical nature is, of course, iconography. Rarely do written sources even begin to tell us what we need to know. However, iconography, too, has its limitations, most of which can be summed up simply with the statement, "no picture before the invention of the camera is a photograph." This may seem obvious—a tautology, even—but it is sometimes difficult to remember when we are faced with the apparent "photographic" realism of fifteenth-century painting. All representational art is in a sense impressionistic (with lower-case i), in that it presents the impression of reality that the artist wishes to give. It also reflects the artist's own impression of objective reality, depending completely upon his or her ability and interest in capturing detail—and often depending upon his or her sophistication regarding the significance of particular details. Artists of the past, like artists today, were not necessarily trained in music. But regardless of musical training, an artist's priorities are different from those of musicians. An artist is concerned primarily with visual harmony, balance and proportion, variety, and symbolism. Even in paintings that strive for an extremely realistic effect, we find evidence that the semblance of reality was sufficient; "good enough was good enough," in all but the rarest of cases.[3] This does not mean there is nothing to be learned from iconography—only that it has to be viewed with circumspection and with the knowledge that rarely does an artist get everything absolutely right. This is especially true concerning an object that is still fairly new to the world; artists, curiously, seem to copy other artists as much as they do directly their physical surroundings,

so that it sometimes takes a while for them to build up a collective repertory of methods of representing new things.

In 1979 Janez Höfler published a study of the slide trumpet[4] that included the results of a careful search through the iconographic record of both slide trumpets and early forms of the trombone. For his diligence and thoroughness we must all be grateful; nevertheless, I have to question some of his conclusions. As a starting place for discussion, let us first examine the picture almost everyone (Höfler himself being a notable exception) seems to agree includes the first reliable depiction of a trombone, with all its elements in place. This is the *Assumption of the Virgin* (executed shortly before 1490) by Filippino Lippi in the church of Santa Maria sopra Minerva, Rome (see Figure 1).[5] Although Höfler admits the player's hand position rules out the instrument's being a slide trumpet, and he grants that the presence of a stay connecting the bell to the mouthpipe makes a U-slide possible, he claims the resulting structure would be unstable and thus that the advent of the true trombone is not yet confirmed by this picture; he finds that the first secure evidence comes from a few decades later.[6] However, I believe his understanding of Lippi's rendition of the instrument is based upon faulty information; he was probably dealing with a reproduction of the fresco before it was cleaned (or with one that provided inadequate detail).[7] His

Figure 1
Detail of trombone-playing angel from Filipino Lippi, *Assumption of the Virgin,*
church of Santa Maria sopra Minerva, Rome (shortly before 1490).
Photo credit: Scala/Art Resource, New York.

schematic drawing[8] shows but two stays, one at the position of the player's right hand, and one directly connecting the bell with the mouthpipe—admittedly a somewhat rickety structure, if it were indeed what was being represented. In the cleaned version of the fresco, however, we clearly see a third stay, just below the player's left hand, uniting the tubes of the inner slide (as on all surviving trombones, early to modern); furthermore, the bell stay appears to pass behind the player's left hand (which grasps the mouthpipe at that place) and thus does not terminate there but continues on to unite the two branches of the bell joint—again, as in traditional trombone construction. (Further confirmation that the bell stay does not terminate at the mouthpipe is the lack of a nodule or "bulge" at that position; such nodules—suggesting ferrules or clasps—are present at all the other points of connection of stays to tubes in this illustration.)

While Lippi's fresco thus presents a very plausible rendition of a trombone, it does show a few anomalies worth noting in passing. One is the size of the bell termination, which is unusually large for the period. On first glance it would seem to resemble the terminal flare of a modern trombone—so much so that that very resemblance has caused some to question the authenticity of the picture. A more careful examination, however, reveals that the bell profile as illustrated differs significantly from that of the modern instrument. In contrast with the smooth (albeit rapid) flare of the modern trombone, the terminal expansion of Lippi's trombone is quite sudden, resulting in a flange or disc (rather like that of a Bronze-Age lur, though smaller) surrounding the mouth of a cone whose rate of taper is actually fairly normal for the period. While unique (to my knowledge) for trombones of any era, this peculiar bell shape is echoed in the drones of the bagpipe in the same fresco (see Figure 2). Since it seems highly unlikely that both the trombone and the bagpipe have been altered in shape, we should look to Lippi's inventive imagination rather than to the brush of a later restorer for the origin of this idiosyncratic bell profile. A further indication the large bell was present from the outset is another unusual feature of Lippi's trombone: the large distance between the straight and flared branches of the bell joint. Both in illustrations and in surviving early trombones the upper and lower bows are of about the same size, whereas the implied size of the upper bow (hidden by the player's head) of Lippi's instrument is much larger than the lower. Lastly, we might note the low position of the outer slide stay, which implies an improbably short slide. I suspect this feature, which we shall encounter again in several other depictions of early trombones, arises from the artist's wish (whether conscious or unconscious) to portray both the player and the instrument in their most graceful and characteristic positions. Concerning the player, this means representing him with the slide arm (i.e., right arm) outstretched; concerning the instrument, however, this means avoiding the disproportionate and somewhat ungainly look of a trombone with its slide greatly extended. The result of responding to these competing visual considerations is thus something of a composite picture, reflecting a dynamic rather than a static impression of a trombone being played. While this explanation for the phenomenon is pure speculation on my part, it is beyond speculation to note how rarely trombones of the period are depicted in "closed" position, and at the same time how commonly their slides appear foreshortened.

Figure 2
Detail of bagpipe-playing angel from Filipino Lippi, *Assumption of the Virgin,*
church of Santa Maria sopra Minerva, Rome (shortly before 1490).
Photo credit: Scala/Art Resource, New York.

Figure 3
Detail of musicians from Bernardo Pinturicchio, *Coronation of Pope Pius III,*
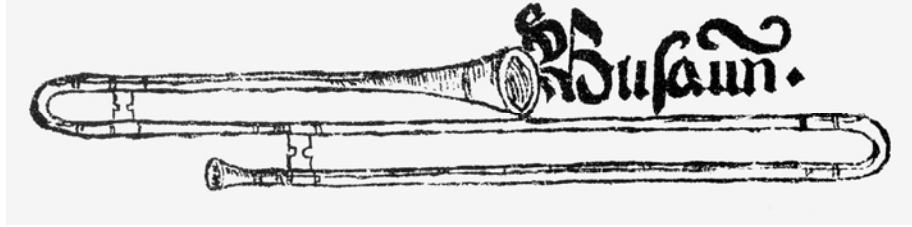Duomo, Siena (ca. 1504). Photo credit: Scala/Art Resource, New York.

Figure 4
Busaun from Sebastian Virdung, *Musica getutscht* (Basel 1511), fol. [Biiii]v.
Reproduced by arrangement with Broude Brothers Limited.

Having found evidence of the mechanically all-important inner slide stay in Lippi's fresco, we are thus able to counter Höfler's primary objection to accepting it as confirmation of the existence of the trombone by 1490. However, the nature of his reservations concerning it (as well as other potential trombone iconography) still goes directly to the heart of the current discussion, for he makes what I believe are unrealistic demands of artists in their representation of detail. He considers it "out of the question" (*ausgeschlossen*) that U-slides are being depicted in several examples commonly accepted as early representations of trombones, simply because they lack direct evidence of an inner slide stay.[9] These examples include the brass instrument in the *Coronation of Pius III* by Bernardo Pinturicchio (fresco arch over the entrance to the Libreria Piccolomini, Siena, 1502-1508 [1504?]; see Figure 3);[10] the "Busaun" illustrated by Sebastian Virdung, *Musica getutscht* (Basel, 1511; see Figure 4); and instruments in woodcuts by Hans Burgkmair and Albrecht Altdorfer for the *Weißkunig* (1512) and the *Triumphzug* (1520) of Emperor Maximilian I (see Figures. 5, 6, 7, and 8). Figure 5 is a detail of "The Emperor and His Musicians" from the *Weißkunig*,[11] and Figure 6 is a detail of Plate 20 of the *Triumphzug*, entitled "Musica, Schalmeyen, pusaunen,
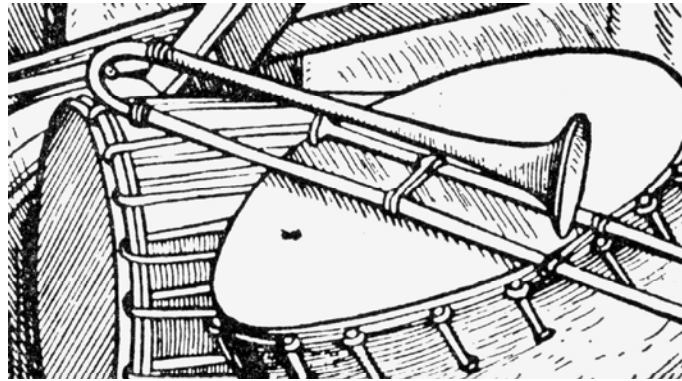

Figure 5
Detail of trombone from Hans Burgkmair the Elder, "The Emperor and His Musicians," *Weißkunig* (1512). Photo credit: Foto Marburg/Art Resource, NY.

Figure 6
Detail of trombonist (Hans Neuschel) from Hans Burgkmair the Elder, "Musica,
Schalmeyen, pusaunen, krumphörner," Plate 20 of the *Triumphzug*
Maximilian I (1520). Reprinted with the gracious permission of Dover Publications, Inc.

Figure 7
Detail of trombonist from Albrecht Altdorfer(?), "Burgundisch pfeyffer,"
Plate 77 of the *Triumphzug Maximilian I* (1520). Reprinted with the
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Figure 8
Detail of trombonist from Albrecht Altdorfer (?), "Burgundisch pfeyffer,"
Plate 78 of the *Triumphzug Maximilian I* (1520). Reprinted with the
gracious permission of Dover Publications, Inc.

krumphörner";[12] these two woodcuts are signed "H[ans] B[urgkmair]." Figures 7 and 8 are details of Plates 77 and 78—two of the three plates representing the "Burgundisch pfeyffer"—of the *Triumphzug*; these are usually ascribed to Altdorfer. In lumping together these woodcuts associated with Maximilian, Höfler has demonstrated less than his usual diligence. While it is true we see delineated no slide stays—inner or outer—in the two Altdorfer plates, we clearly see both inner and outer slide stays in the two by Burgkmair. Höfler's having missed the outer slide stay in the *Weißkunig* example is perhaps understandable, since the lines that indicate it run so close to those indicating the rim of the kettledrum upon which the trombone lies; however, his failure to note the presence of two slide stays in the other Burgkmair print is harder to explain. Höfler claims the first clear evidence of the two parallel stays that make the U-slide possible comes from about 1520 (the approximate date of a painting in grisaille by Polidoro da Caravaggio—see Figure 9[13]) or even as late as 1532 (the date he incorrectly assigns to the well-known engraving of the "City Minstrels" by Heinrich[14] Aldegrever, which is clearly dated 1538; see Figure 10[15]). He is thus led to surmise that the advent of the U-slide may have been no earlier than the second decade of the sixteenth century, even though he realizes this finding is at odds with the prevailing opinion of other researchers.[16]

It seems clear, I believe, that in all these early sixteenth-century depictions we are dealing with trombones, regardless of whether stays are explicitly represented. The in-

Figure 9
Detail of trombone-playing Muse from Polidoro da Caravaggio,
Apollo with the Muses, north Italian (ca. 1520), Fürst Liechtenstein Museum,
Vienna, Inv. GE207. Reproduced by permission,
Sammlungen des Fürsten von und zu Liechtenstein, Vaduz/Wien.

struments have the proportions and configuration of trombones, those being played are held as trombones, and—perhaps most important—they all have the carefully delineated straight, parallel tubes of a trombone U-slide (something conspicuously untrue of some of the purported representations of trombones from the fifteenth century). These early sixteenth-century pictures should be considered in a longer-range context of trombone iconography. It is not difficult to find later depictions (from a time when the existence of the trombone is clearly not in doubt) in which we find one or both of the slide stays to be missing.[17] It would be silly, I think, to suggest there is any significance to the absence of stays in these later examples other than inattention (or artistic license) on the part of the illustrator, and it would thus be wrong to impute greater significance to their absence in earlier examples. It is worth noting, too, that both slide stays are easily hidden by the hands of the player, depending upon both his grip of the instrument and the angle from which

it is being viewed. This fact could easily account for some of the supposedly missing stays, as for instance in the case of the trombones in Figures 7 and 8.

Having examined several credible illustrations of trombones from the late fifteenth and early sixteenth centuries, we are now in a position to look at some of the earlier, more dubious and thus even more controversial examples. Höfler coined the term "proto-trombones" (*Protoposaunen*) to describe instruments—including several of the later examples we have just examined—that have trombone-like characteristics without all the requisite features, particularly the stays. These characteristics include the shortening of the mouthpipe branch in relation to the central branch (so that the upper bow passes alongside the player's ear) as well as a shortening of the bell branch (so that the lower bow extends past the bell). We do not necessarily find these two characteristics together; especially in the earlier period (but sometimes later as well) we find instruments with the upper bow extending backwards coupled with the "forward" bell typical of the slide trumpet. A few of Höfler's earlier examples of proto-trombones had already been considered by Anthony Baines, with whose work Höfler seems not to have been acquainted.[18] Baines points out why in particular the configuration with backwards-projecting upper bow and "forward" bell makes little sense for the slide trumpet, since it "would reduce the proportionate slide length by an amount that would absurdly deprive the slide of much of its anyhow limited musical value."[19] This observation by Baines thus prompts the general question, why would one adopt the layout of the trombone, even partially, without the U-slide? This all-impor-

Figure 10
Detail of trombonist and slide-trumpet players from Heinrich Aldegrever,
City Minstrels (1538). Photo credit: Bildarchiv Preussischer Kulturbesitz/Art
Resource, New York.

tant issue is not addressed at all by Höfler, who merely lists and describes the "pre-forms" (*Vorformen*) of the trombone. Implicit in Höfler's article (with a section-heading "On the Way to the Trombone"—*Auf dem Wege zu der Posaune*) is the idea that the transition from slide trumpet to trombone might somehow have been gradual. Here we must distinguish between the *adoption* of the new form (which very well might have been gradual) and its *development*; clearly there is no "middle ground" between a single and double slide! Höfler, however, makes no such distinction, and we are left in the dark as to why he thinks the first steps down the path towards the trombone might have been taken before the invention of the U-slide.

Figure 11
Detail of shawm band with proto-trombone(?) from Leonardo da Besozzo,
Coronation of the Virgin church of San Giovanni a Carbonara, Naples
(ca. 1440). Photo credit: Scala/Art Resource, New York.

Figure 12
Detail of shawm band with slide trumpet from Leonardo da Besozzo,
Coronation of the Virgin, San Giovanni a Carbonara, Naples (ca. 1440).
Photo credit: Scala/Art Resource, New York.

Turning to the examples themselves, we find that those predating the Filippino Lippi example are rather few in number—five or six, in fact, depending upon how we date them. (This paucity of examples is in itself significant, given the scores—if not hundreds—of images of slide trumpets of "normal" configuration from the same period.) Perhaps the first is one of the two trumpets shown in a *Coronation of the Virgin* by the Lombard painter Leonardo da Besozzo, ca. 1440, in San Giovanni a Carbonara in Naples.[20] The two trumpets are members of two different shawm bands, one shown on the upper left (Figure 11) and the other on the lower right (Figure 12). Both instruments are rather small, and their similarity is perhaps more striking than their difference; admittedly, however, the one on the upper left (that cited by Höfler) has a somewhat more trombone-like layout (with its

Figure 13
Detail of shawm band with proto-trombone(?) from Giovanni di Ser Giovanni(?),
so-called *Adimari Wedding Cassone,* (Florence, between 1440 and 1465),
Accademia, Florence. Reproduced with the gracious permission
of the Ministero dei Beni e le Attività Culturali, Florence.

upper bow alongside the ear of the player) than the other. Both have the S-shaped format
(in which all three branches lie in a single plane) that preceded the "looped" design typi-
cal of later trumpets. The second example, according to Höfler's ordering, is to be found
in the so-called "Adimari Wedding Cassone" (Florence, Galleria dell'Accademia di Belli

Figure 14
Detail of shawm band with proto-trombone (?) from an anonymous
Florentine engraving, ca. 1460-70. Reprinted with the gracious
permission of Knoedler and Co., New York.

Arti) of which I will have more to say later (see Figure 13).[21] Suffice it for now to note that the instrument as illustrated combines elements of the slide trumpet ("forward" bell; player's grip) with those of the trombone (general size; backwards-extending upper bow). To this work he ascribes the date "ca. 1440," but—as we shall see—there are good reasons to think it hails from a decade or two later. The third appears in an anonymous Florentine *Assumption of the Virgin* (copper-plate engraving, ca. 1460-70, in the Uffizi, Gabinetto delle Stampe; see Figure 14).[22] This instrument is similar in size and layout to the Besozzo example (Figure 11), with its upper bow extending backwards past the mouthpiece and its bell extending just past the lower bow; however, as noted by Höfler, the position of the player's right hand implies the presence of a stay (and thus a U-slide). Nevertheless, his overall conclusion is that this is once again a slide trumpet and not a trombone, since there is no indication of a stay uniting the branches of an inner slide. Since the upper bow is hidden from view, it is unclear whether this instrument is (like the Besozzo trumpets) in a flat S-format or instead has been assembled in a more trombone-like fashion (in which the plane of the upper bow lies at an angle more or less perpendicular to that of the lower).

The next examples are German. The first is seen in a *Coronation of the Virgin* in the Alte Pinakothek, Munich, executed between 1463-66 by an anonymous Cologne master (see Figure 15).[23] This painting has long been ascribed to the Master of the Life of Mary

Figure 15
Detail of proto-trombone(?) from Master of the Lyversberg Passion,
Coronation of the Virgin (Cologne, between 1463 and 1466),
Alte Pinakothek, Munich. Photo credit: Herbert W. Myers.
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Staatsgemäldesammlung, Alte Pinakothek, Munich.

(Meister des Marienlebens), so named from his series of paintings depicting scenes from the life of the Virgin;[24] more recently, however, it has been attributed instead to the Master of the Lyversberg Passion (Meister der Lyversberger Passion), another anonymous artist working at the same time and place.[25] This instrument is the first of Höfler's proto-trombone examples to have the typical layout of a trombone, with both the mouthpiece and bell positioned between the upper and lower bows. At the same time, however, there is no indication of the presence of any stays, and the positions of the player's hands resemble those of a slide trumpet player more than those of a trombonist. (Compare, for instance, the hand positions shown in this example with those depicted by Lippi and Pinturicchio—Figures 1 and 3 above.) Another German example is found in the *Legend of St. Cecilia* by Hinrik Funhof, in Lüneburg (painted in 1483 or 1485—see Figure 16).[26] This is perhaps the most puzzling of all the examples, since it appears to consist of a doubly looped trumpet—completely out of the tradition as I understand it. (One might legitimately wonder if this painting has

Figure 16
Detail of musicians from Hinrik Funhof, *Legend of St. Cecilia* (1483 or 1485),
Johanniskirche, Lüneburg. Photo reprinted with gracious permission of the
Johanniskirche, Lüneburg, and the Deutscher Kunstverlag.
Reproduced from Georg Gmelin, *Spätgotische Tafelmalerei in Niedersachsen
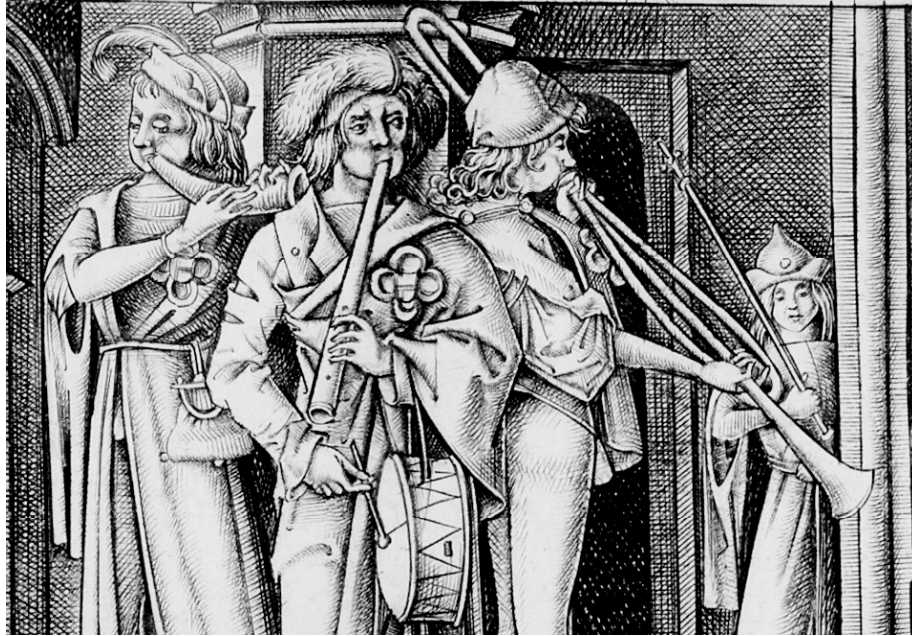und Bremen* (Deutscher Kunstverlag, 1974), p. 119.

Figure 17
Detail of the musicians from Israhel van Meckenem, *Dance of Herodias* (ca. 1500).
Photo credit: The New York Public Library/Art Resource, New York.

been retouched, although there seems to be no direct evidence of such alteration.) There is in any case no real indication from the way it is being held that this is a slide instrument, single or double, and the only reason to think it might be is its inclusion in what seems to be a shawm band. Finally there is the brass instrument in Israhel van Meckenem's engraving *The Dance of Herodias*, which Höfler assigns to the last quarter of the fifteenth century (see Figure 17).[27] (Most sources give "ca. 1500"; Meckenem in any case died in 1503.) This is again an enigmatic portrayal of a brass instrument—a visual oxymoron, if you will—since it eludes a satisfying interpretation. The instrument is very long (with a long bell projection), apparently exceeding the length of a tenor trombone. However, it is being held in the fashion of a slide trumpet, with the player's right hand on the bell branch and his left at the mouthpiece; there are no hints of the presence of stays, nor are there any other indications of the presence of a U-slide. The tubes are, moreover, too crooked for it to function as either a slide trumpet or a trombone. On the other hand, it is difficult to see it as a heraldic trumpet, given both the context in which it appears (as a member of an ensemble playing for dancing) and the stance of the player (who holds it at the downwards angle typical of brass instruments equipped with slides). It should be noted that there is something "wrong" with each of the other instruments as well: the fingerhole horn is surely far out of date, and the tabor pipe looks more like a mute cornett (with expanding bore,

Figure 18
Detail of trombone(?)-playing angel from Matteo di Giovanni,
Assumption of the Virgin (Siena, probably 1474), National Gallery, London.
Photo credit: National Gallery, London. Reproduced with permission.

too many fingerholes, and no indication of a voicing or "window"). The artist seems to have been either "unclear on the concept" or trying for some odd, pseudo-antique effect. The latter idea seems more in keeping with his usual accuracy in representing musical instruments in his other works.[28]

Figure 19
Detail of trombones from Gentile Bellini, *Procession of the Cross
in the Piazza San Marco* (Venice, 1496), Accademia, Venice.
Photo credit: Erich Lessing /Art Resource, New York.

It should be noted that Höfler's list leaves out of consideration two fifteenth-century examples often cited as portrayals of trombones. One is the *Assumption of the Virgin* by Matteo di Giovanni (active 1452; died 1495) in the National Gallery, London (see Figure 18).[29] While the object in question (held by an angel in the upper right) is almost certainly some sort of brass instrument (given the clear representation of a cup mouthpiece), and it possesses a plausibly delineated U-slide with parallel tubes, it lacks any indication of a bell (!), let alone stays. The other example commonly cited is the *Procession of the Cross in the Piazza San Marco* by Gentile Bellini, 1496 (Venice; Gallerie dell'Accademia—see Figure 19).[30] Behind the trumpeters of the doge walk the *piffari*, two of whom are playing brass instruments that can only be identified as trombones. The one closer to the viewer is particularly clearly depicted; both its configuration (with two straight, parallel tubes connected by the lower bow) and the stance of its player are consistent with its being an instrument fitted with a U-slide. (Admittedly, the positioning of the bell to the right of the player's head is non-standard for a trombone, but it is nonetheless feasible—not to mention the possible result of an exercise of artistic license.) There is, however, no positive evidence of stays, and it is evidently their absence here that has caused Höfler to ignore this source.

I shall now return, as promised, to the subject of the so-called "Adimari Wedding Cassone." Dealing with this famous picture is a little like dealing with "The Artist Formerly Known As 'Prince'"; no matter what we discover about it, it will always somehow carry the name originally associated with it. It has been shown, of course, to have had nothing to do with the Adimari family, nor indeed any known family or event; it seems not even to represent a wedding, and it is much too big to have ever been part of a *cassone* or wedding chest. Many interesting discoveries about this painting (including the history of its erroneous identification with the wedding of Boccaccio Adimari and Lisa Ricasoli in 1419) have been detailed by Timothy McGee.[31] As McGee reports, the picture is now credited by more than one art historian to Giovanni di Ser Giovanni (who, incidentally, was the brother of Masaccio) and probably dates from between 1440 and 1465. (Even though historians had long given up the ascription to "ca. 1420" that had once been advanced, based upon the date of the actual Adimari wedding, and "ca. 1440" has become the most common dating—as, for instance, reported by Höfler—this newer dating pushes the envelope even later.) As McGee shows, the picture represents an amalgamation of various Florentine elements, not all of which could have been seen together at any one time; it is, in short, a fantasy, attempting to evoke an image of Florence without any specific references as to place, date, or event. Even its original purpose remains something of a mystery, since it is atypical in shape and subject even for a *spalliera*—a painted panel used in a home of the time somewhat as a window-substitute.

Our interest, of course, is the instrumental ensemble depicted at the left of the painting, accompanying the dance that occupies center-stage. This is clearly a shawm band, including a brass instrument often hailed as the "first depiction of a trombone." (As noted above, it is not exactly a trombone, combining some elements of the slide trumpet with some of the trombone.) McGee goes on to offer some speculations about the depiction of this ensemble and its instruments based upon observations that do not square with my own

experience. In particular, he suggests the brass instrument (or, as he calls it, the "mouthpiece instrument," in order to avoid saying "brass instrument") may well have been repainted by an early restorer, who may have reconfigured it from its supposed "original" shape as a typical slide trumpet to the more elongated form it now possesses. (It should be pointed out that McGee makes it clear he is "on his own" in these speculations, and that there is no evidence from the painting itself—or at least none that the most recent restorer[32] could see—to indicate the basic shape of the instrument has been altered.) He bases his reasoning here on several considerations, in addition to the atypical shape of the instrument as now seen. First, he asserts, its color—gold—is the "wrong" one for the period; "mouthpiece instruments were silver."[33] (I find this his most amazing statement of all, since, as we have been seeing, gold is indeed the most common color for trumpets and related instruments throughout the period.) Following his reasoning along a little further: he suggests the slide trumpet in this picture was executed originally in silver leaf, which has oxidized and flaked off (as has happened to some of the costume ornamentation elsewhere in the picture), making an early (that is, pre-modern) restoration necessary. Thus the instrument's current shape and color may not be those it originally had in the fifteenth century, but may be the result of such anachronistic restoration. McGee points to the misshapen bell and inwardly curving tubes at the lower end of the instrument as anomalies that suggest reworking. The shawms also, he claims, are painted the "wrong color" ("shawms were always made of dark wood," he says[34]), suggesting that they, too, have been repainted. Their current light, golden color may, he thinks, be the result of a misunderstanding according to which they were given the trumpet color of a later time—this in spite of their clear depiction as woodwinds, with fingerholes and being fingered by the players. He is also bothered by their all being the same size, when musical use would require a mixture of trebles and tenors (or bombardes—"alto shawms" in modern parlance), and he notes that the banners attached to them (and prominently displaying the Florentine *fleur-de-lis* emblem) should by rights be reserved for the civic trumpeters instead. He claims, "when banners *are* found in paintings of the period, they are unfailingly on trumpets."[35] (On this last point he sought confirmation from Edmund Bowles, who claims also to have found no banners on shawms; McGee avers it would not only be difficult to attach banners to shawms but it would make them difficult to play.) He assumes such anomalies as the presence of banners on the wrong instruments were the result of a conscious decision on the part of the artist, and that their purpose might have been "to remind the viewer that only fantasy was intended."[36]

There are several problems here. In the first place, as I have just pointed out, brass was the most common material for "brass" instruments, and is often represented in paintings by the use of gold leaf.[37] Silver leaf is actually fairly rare, since its tendency to deteriorate was well recognized by artists of the day.[38] (Representations of *blackened* silver instruments are to be found, however, two of the most commonly known examples being the trumpets of the doge in the Gentile Bellini *Procession in the Piazza San Marco*, mentioned above, and the straight and looped trumpets in the Najera triptych by Hans Memling [Antwerp, Musée des Beaux-Arts]).[39] In both instances the "color" of the instruments is represented by black paint, and in both the instruments are garnished with ferrules and garlands of a

golden color.[40]) Woodwinds, including shawms, range in color from light brown to dark brown in early paintings.[41] There are many depictions of shawm bands in which the painter included all trebles[42] or all tenors;[43] it is likely that the musical significance of the key cover or "fontanelle"—the most obvious distinguishing characteristic of the bombarde—was lost on most artists.[44] Finally, there are some (not many, but a few) depictions of shawm bands in which banners are attached to shawms.[45] (Why they would be any more difficult to attach to a shawm than a trumpet, or why they would be inhibiting to the technique, I do not know.)

As we have come to know it from most reproductions, the proto-trombone in the "Adimari" painting has clearly experienced some damage; the gold leaf representing the tubes of this brass instrument has "gone missing" in a few areas, leaving some gaps in its outline. Primarily affected are portions of the tubing near the player's right hand; in addition, part of the lower bow and part of the bell are missing where they should pass over the (left) pantleg of the musician seated to the left of the brass player, giving the rather odd impression that they pass behind it and are thus hidden by it—clearly a physical impossibility in the "real world." In the most recent restoration the restorer chose to fill in the gaps in the gold leaf representing the cylindrical tubing but left untouched the bell, which is thus still both small and asymmetrical.[46] In my opinion it would have made sense to go just a little further and to fill in the obviously missing part of the bell, making it both symmetrical and of a size more normal for the period. I have made my own "restoration" of the instrument in a copy of the painting to demonstrate what I mean by this (see Figure 20).

Despite any restitution of the gold leaf representing either the cylindrical tubing or the bell, we are still left with a depiction of a brass instrument that does not, if taken literally, allow for a satisfying interpretation as either a slide trumpet or a trombone. Mention has been made above of the questionable advantage of extending the upper bow of a slide trumpet backwards, past the ear of the player; in addition to the matter that so concerned Baines—that of decreasing the length of the (single) slide in proportion to the length of the rest of the instrument—there are a number of other difficulties that arise from adopting this configuration.[47] Not the least of these is the increased weight and length of the middle and bell branches, increasing the instability of an already somewhat delicate structure. (In the absence of stays the stability of the structure is dependent upon the stiffness of the tubes, and especially of the lower bow; in the case of the "Adimari" instrument, which is held with the right hand of the player placed comparatively low and grasping only the middle and bell branches, the strain on the lower bow would seem to be enormous. At the very least the whole contraption would seem to be rather "floppy," with the unsecured upper bow tending to wobble about with every position change.[48]) Given the slight divergence of the mouthpipe branch from the other two, dictated by the need to ensure that the upper part of the loop misses the ear of the player as it supposedly passes by him, the option of stabilizing the structure by having the player grasp the mouthpipe and bell branches—as seen in a number of depictions of slide trumpets—would seem to have been unavailable in this case. On the other hand, that divergence, however slight, would have prevented the lower part of the loop from acting as a U-slide, so that we cannot accept this as an accurate

Figure 20
Detail of proto-trombone(?) from Fig. 13, with suggested restoration of the bell.

rendition of a trombone, either (even one with a long bell extension).[49] Once again we are forced to assume that the painter missed something crucial about the construction or configuration of this instrument or how it is held.

Recently Patrick Tröster has added his own speculations on the nature of the "Adimari" brass instrument.[50] (Unfortunately, he has not taken into account McGee's discoveries of more recent scholarship concerning the dating, ascription, and original purpose of the panel. Nor has he addressed the issues raised by Baines and Höfler, as discussed above.) Tröster postulates that the instrument is indeed a slide trumpet, but one fitted with a slide that surrounds the mouthpipe branch (a "put-on" slide, as he calls it) rather than one that is inserted into that tube (the "normal" construction, as we now understand it). He bases his reasoning on a careful consideration of the position and style of grip of the player's left hand: the player holds the mouthpipe with the "dart-style" (as opposed to the "cigarette-style") grip,[51] and he places his hand several inches lower than would be optimal for making complete use of an inserted slide. The disadvantage to such a placement of the hand would be overcome by the use of a put-on slide, in Tröster's view, since the player's grasp on the slide would

not then act as an impediment to its full closure. However, there would seem to me at least two disadvantages to the use of such a slide, one acoustical and the other aesthetic. From the acoustical point of view, a put-on slide would represent an "anti-leadpipe," so to speak. (Modern trumpets and trombones employ a so-called "leadpipe"—an expanding section of tubing leading from the mouthpiece to the basically cylindrical tubing constituting the majority of the instrument's length. Such a leadpipe, lacking in early brass, is recognized by players as advantageous for focus and attack; thus it stands to reason that a section of pipe effectively contracting in diameter from the mouthpiece to the top of the main tubing—as one would have with a put-on slide—would give noticeably poorer results than those produced by the inserted slide, which, acting as a constriction, should instead confer some of the benefits of a leadpipe. Nevertheless, it is certainly worth experimenting with alternative constructions to confirm or deny such suspicions.) From the aesthetic point of view, a put-on slide would seem to exacerbate one of the perennial problems of the brass player: dealing with condensed water. One could expect such a slide to be a constant source of dribbling water; at the same time, it would not prevent the buildup of condensation in the lower bow, which would still need to be drained from time to time. It is hard at this point to see what advantages such a put-on slide might bring—other than allowing the sort of grip seen in the painting—that would outweigh its disadvantages. (It certainly would not in itself solve any of the problems of structural instability noted above. And it would prevent any mechanical solution to those problems, such as tying the mouthpipe to the upper part of the loop.)

As to the grip itself, it seems to me we should be wary of taking artists too literally about hand positions, just as we should be cautious regarding their absolute fidelity in representing instruments.[52] It is difficult for me to believe that artists, even the most careful ones, universally understood the significance of subtle differences in the way instruments were held, crucial as such differences might be to musicians. And again, as noted above regarding the common phenomenon of disproportionately short slides in early pictures of trombones, it seems to me probable that artists were more concerned with presenting a graceful and visually pleasing image of a performer than in adhering strictly to objective reality. In any case (and without taking sides in the controversy we have witnessed over the comparative merits of the "cigarette" grip and the "dart" grip) I should point out that the iconography of the slide trumpet, taken as a whole, shows considerable variety in terms of grip and hand placement. Concerning only the upper, stationary hand (usually the left), we find grips with palm in, palm out, and in between; grips with all or only a few fingers contacting the instrument; and placements of the hand from right up against the mouthpiece to several inches lower. At the moment, at least, it does not seem possible to tie a particular style of grip or hand placement to a specific type of slide trumpet, period of time, or geographical area.

Musical iconography will always remain an inexact science; there will always be controversy over both the credibility and significance of portrayals of instruments and performances in early artworks. There are, however, a few principles that can be borne in mind to help objectify our perceptions. One must look carefully at how the artist has handled instruments

Figure 21
Detail of bell stay with trombone-playing angel from Sebastian Hainlein II,
tenor trombone, Historisches Museum, Frankfurt am Main, X438a.
Photo credit: Herbert W. Myers. Reproduced with gracious permission
of the Historisches Museum, Frankfurt am Main.

other than the one we are most interested in at the time. For instance, when an artist is clearly confused about something very basic to the construction of a woodwind (such as transposing the fontanelle of a bombarde to a position *above* the player's hands[53]), to what extent should we take him seriously about the way he has represented a slide trumpet in the same picture? On the other hand, we sometimes find an amazing verisimilitude in the rendering of certain instruments and their details that inspires extraordinary faith in the way others have been portrayed in the same work (or in other works by the same artist). Nevertheless, we should still be wary about confusing a realistic style with absolute photographic realism; all art should be considered to some extent "guilty until proven innocent" in this regard. A second principle is to compare the "track record" of artists over a longer period (as we have with later trombone iconography) to see how consistently a particular detail is represented in general; if artists can "get it wrong" in a later period, that fact is perhaps illuminating regarding how such details might have been handled (or mishandled) in the formative years of the instrument's development.[54] An example clearly demonstrating this point is to be seen in Figure 21, showing the decorated bell stay of a trombone by Sebastian Hainlein, Jr., Nuremburg (1631), now in Frankfurt am Main (Historisches Museum, x438a). Despite the engraver's evident involvement in the trombone-making process, he has still managed to distort the proportions of the very instrument he is supposedly illustrating; moreover, he has transposed the positions of the bell stay (the one he

is, in fact, decorating!) and the upper slide stay.[55] A final principle is that we should try to "think like an artist" in examining artworks, not just like musicians. We should be asking ourselves constantly how the visual aspects of the picture would be affected by changes in angles, sizes, and orientations, or the inclusion or suppression of potentially distracting detail. How were the choices of subject matter and emphasis affected by extra-musical considerations, such as symbolism? We need to remember that artworks were rarely if ever intended as lessons in performance practice (or blueprints of instruments!), and that any information we may glean from them about musical issues may well have been of peripheral interest to their creators.

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For many years most scholars of trombone history have accepted "shortly before 1490"—the date of the Lippi *Assumption* in Rome—as the first comparatively secure date confirming its existence as a double-slide instrument. While a few scholars, such as Janez Höfler, have expressed their doubts, I believe I have shown that such doubts are themselves based upon shaky ground, and that we can be quite certain of its existence by that point in a form very similar in proportions and structure to that familiar to us from extant early examples. The iconographic record from the period before that date is still less than certain in its implications. As we have seen, there are a small number of pictures from the fifty-year period preceding the Lippi that show instruments that do not fulfill our expectations as slide trumpets, but that at the same time do not satisfy the requirements of trombones. My own suspicion is that most of them are, in fact, representations of trombones—perhaps with some elements (such as elongated bell yards) retained from the slide trumpet—that were to a certain extent misrepresented by artists because of their novelty at the time.[56] (I might throw out the earliest example—that by Besozzo, ca. 1440—as perhaps a "fluke"; eliminating this example reduces the time envelope by a decade or two to a more plausible thirty-year period of development and dispersion.[57]) Perhaps the single most disturbing element pointing away from their representing trombones is still their lack of stays (which, once they become part of the artist's "vocabulary," so to speak, are rarely missing from depictions of both trombones and slide trumpets from then on, even when they are misplaced or otherwise mistakenly presented).[58] For this apparent absence of stays through most of the fifteenth century I have no ready explanation: whether artists collectively did not notice them, felt they were details too unimportant to reproduce, or—Heaven forbid—failed to see them because they really were not there, we may never know!

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*America's Performer's Guides. For the academic year 1967-68 he was awarded a DAAD grant
to measure instruments in German museums. His designs for reproductions of Renaissance winds
have been used by Günther Körber and Charles Collier.*

NOTES

[1] An earlier version of this paper was presented at the Fifteenth Early Brass Festival in Berkeley,
California, August, 1999.

[2] See Curt Sachs, "Chromatic Trumpets in the Renaissance," *Musical Quarterly* 36 (1950): 62-66.

[3] See Edwin M. Ripin, "The Norrlanda Organ and the Ghent Altarpiece," *Festschrift to Ernst
Emsheimer, Studia instrumentorum musicae popularis*, ed. Gustaf Hilleström, III (Stockholm: Nordiska
Musikförlaget, 1974), 193-96 and 286-88, for a discussion of a specific example of pseudo-realism in
fifteenth-century art. Ripin demonstrates that not only did the famous positive organ illustrated in
the Ghent Altarpiece undergo a "modernization" of its keyboard at some point between the inception
of the painting and its completion in 1432, but that there is no way to reconcile the number of
pipes shown with the number of keys implicit in its current configuration. Further examples of such
pseudo-realism—in this case involving non-musical objects—have arisen in the literature refuting
the provocative theory of David Hockney (*Secret Knowledge: Rediscovering the Lost Techniques of the
Old Masters* [New York: Viking Studio, 2001]) that optical methods were used by the van Eycks and
others to achieve their seemingly photographic effects; see in particular David G. Stork, "Optics
and Realism in Renaissance Art," *Scientific American* 291, no. 6 (December 2004): 76-83. My own
involvement in attempts to realize instruments portrayed by Hans Memling (another artist often
credited with photographic accuracy) has revealed a number of similar discrepancies between the
objects represented and the demands of actual instruments. For instance, in the case of his portative
organ—an instrument that shows up in several of his paintings—there is once again a problem
reconciling the number of pipes and their proportions with the number of keys and their apparent
range, just as with the van Eyck positive. Also, the fret placement of both his lute and fiddle (tending
towards equal spacing rather than any geometrical progression) demonstrates ignorance of—or
disregard for—details of considerable musical significance.

[4] Janez Höfler, "Der 'Trompette de menestrels' und sein Instrument: Zur Revision eines bekannten
Themas," *Tijdschrift van de Vereniging voor Nederlandse Muziekgeschiedenis* 29 (1979): 92-132.

[5] For a reproduction of the complete fresco see Steffi Roettgen, *Italian Frescoes: The Flowering of the
Renaissance, 1470-1510* (New York: Abbeville Press, 1996), Pl. 105.

[6] Höfler, "Trompette de menestrels," 104-05.

[7] According to Roettgen (*Italian Frescos,* 452), the frescoes of the Carafa Chapel were cleaned and
restored in 1960-61.

[8] Höfler, "Trompette de menestrels," 107, Fig. 14. This drawing seems to have been based in turn
upon one in an earlier modern source, Valentin Denis, *De muziekinstrumenten in de Nederlanden
en in Italië naar hun afbeelding in de 15e-eeuwsche kunst* (Leuven: Universiteitsbibliotheek, 1944),
Fig. 179, p. 193.

[9] Höfler, "Trompette de menestrels," 105.

[10] For a reproduction of the complete fresco see Roettgen, *Italian Frescoes,* Pl. 154.

[11] For a reproduction of the complete plate see Robert Wangermée, *Flemish Music and Society in the
Fifteenth and Sixteenth Centuries* (New York: Frederick A. Praeger, 1968), Ill. 80.

[12] For reproductions of the complete plates from the *Triumphzug* see *The Triumph of Maximilian I*

(New York: Dover, 1964).

[13] For a reproduction of the complete picture see Paul Schubring, *Cassoni* (Leipzig, 1915), Pl. 847. In this panel (inventory number GE207 in the Liechtenstein Museum) depicting Apollo and the Muses, Apollo and seven of the Muses are shown playing instruments (including the one playing the trombone); in a companion panel (*Allegory of Music*: inventory number GE202; Pl. 846 in Schubring) a very similarly proportioned trombone is depicted, leaning against a positive organ. Höfler apparently assumed from the title of Schubring's book that the panels in question are (or once were) parts of a *cassone* or wedding chest; Schubring himself, however, suggests (text volume, p. 409) they probably originate from an organ case, though they are currently inventoried in the museum as harpsichord lids. The latter identification seems highly improbable, both because of their shape (elongated rectangles) and their thickness (5.5cm and 3cm, respectively); their original purpose seems at this point uncertain.

[14] Not Hans, as given by Höfler.

[15] For a reproduction of the complete plate see Ross W. Duffin, "The *trompette des* menestrels in the 15th-century *alta capella*," *Early Music* 17, no. 3 (1989): 397-402, Ill. 3 (on p. 399); or Wangermée, *Flemish Music*, Ill. 65.

[16] Höfler, "Trompette de menestrels," 129, n. 83.

[17] See, for instance, the trombones in several title pages of the sixteenth and seventeenth centuries: those of Orlando di Lasso, *Patrocinium Musices, Prima Pars* (1573) and *Psalmi Davidis Poenitentiales* (1584); Adam Gumpelsheimer, *Neue Teutsche Geistliche Lieder* (1591); Michael Praetorius, *Musarum Sioniar[um]* (1607—reused as the title page of his *Theatrum Instrumentorum*, 1620) and *Polyhymnia panegirica* (1618); and Johann Hermann Schein, *Fontana d'Israel* (1623). (These are reproduced as Plates 44, 45, 51, 89, 90, and 95, respectively, of Gottfried S. Fraenkel, ed., *Decorative Music Title Pages* [New York: Dover, 1968].) See also the trombones in the following paintings, in which the presence of slide stays is more implicitly than explicitly indicated: Hans Mielich, *The Bavarian Court Orchestra under Orlando di Lasso*, ca. 1570 (reproduced in Walter Salmen, *Musikleben im 16. Jahrhundert, Musikgeschichte in Bildern* III/9 [Leipzig: VEB Deutscher Verlag für Musik, 1976], Ill. 106; and Wangermée, *Flemish Music*, Ill. 97); Denis van Alsloot, *Procession in Honor of Our Lady of Sablon*, 1616 (detail in John Henry van der Meer, *Musikinstrumente: Von der Antike bis zur Gegenwart* [Munich: Prestel-Verlag, 1983], Ill. 283); and Pieter Lastman, *King David in the Temple*, 1618 (detail in Alexander Buchner, *Musical Instruments: An Illustrated History* [New York: Crown Publishers, Inc., 1973], Ill. 254).

[18] See Anthony Baines, *Brass Instruments: Their History and Development* (New York: Charles Scribner's Sons, 1976), 107-08.

[19] Ibid., 108.

[20] For a reproduction of the complete painting see Heinrich Decker, *The Renaissance in Italy: Architecture, Sculptures, Frescoes* (New York: Viking Press, 1969), Pl. 237.

[21] For a reproduction of the complete panel see Bryan Holme, *Medieval Pageant* (New York: Thames and Hudson, 1987), 58-59.

[22] For a reproduction of the complete engraving see Arthur M. Hind, *Early Italian Engraving, Part I* (New York: M. Knoedler and Co., 1938), Pl. 16. Hind, it should be noted, specifies no location for this print; its presence in the Uffizi, Gabinetto delle Stampe is cited by Höfler. I have so far been unable to verify this location or discover an inventory number, however.

[23] Inv. No. WAF 625. For a detail of the ensemble (shawm band) of which the proto-trombone is a member see Herbert W. Myers, "Slide Trumpet Madness: Fact or Fiction," *Early Music* 17, no. 3 (August, 1989): 382-89, Ill. 2 (on p. 385); for a reproduction of the complete painting see Max Sauerlandt, *Die Musik in fünf Jahrhunderten der europäischen Malerei* (Königstein im Taunus and Leipzig: Karl Robert Langewiesche Verlag, 1922), 9.

[24] Anthony Baines, rather amusingly, seems to have assumed that "Marienleben" (like "Marienbad," perhaps?) was a place, so he refers (*Brass Instruments,* 107) to the "Master of Marienleben." I mention this only because others have picked up on his mistake and have referred to this supposed "Master of Marienleben."

[25] See, for instance, the most recent museum catalog, *Alte Pinakothek München: Erläuterungen zu den ausgestellten Gemälden, Korrigierte und durch einen Anhang erweiterte Ausgabe* [3rd ed.] (Munich: Karl M. Lipp Verlag, 1999), 323-24.

[26] For a reproduction of the complete painting see Hans Georg Gmelin, *Spätgotische Tafelmalerei in Niedersachsen und Bremen* (Munich: Deutscher Kunstverlag, 1974), 117ff. Höfler inexplicably chose to spell the artist's name "Fünfhof."

[27] For a reproduction of the complete engraving see Sydney Beck and Elizabeth E. Roth, *Music in Prints* (New York: The New York Public Library, 1965), no. 1.

[28] See for instance *The Organ-player and his Wife*, in ibid., no. 2; and *The Lute-player and the Harpist* and *The Lute-player and the Singer*, in Edmund Bowles, *Musical Performance in the Late Middle Ages* (Geneva: Minkoff / Paris: Lattès, 1983), Plates 94 and 95.

[29] This painting is cited by Curt Sachs, *The History of Musical Instruments* (New York: W. W. Norton & Company, 1940), 326 as "the first pictorial evidence of the trombone." According to the current website of the National Gallery of Great Britain, the date of the work is "probably 1474"; if that dating is correct, it naturally contradicts Sachs' claim of primacy for this source. For a reproduction of the complete painting see Augusto Gentili, William Barcham, and Linda Whiteley, *Paintings in the National Gallery, London* (Boston, New York, and London: Little, Brown & Co., 2000), No. 47.

[30] For a reproduction of the complete painting as well as a detail showing the musicians, see Denis Stevens, "Musicians in 18th-century Venice," *Early Music* 20, no. 3 (1992): 402-08, here 406-08.

[31] Timothy McGee, "Misleading Iconography: the case of the 'Adimari Wedding Cassone,'" *Imago Musicae* 11/12 (1992-95): 139-57.

[32] Luisella Penucci, according to Ibid., 153.

[33] Ibid.

[34] Ibid., 149.

[35] Ibid.

[36] Ibid. Such a motivation seems to me improbable, given the artist's general attempt at realism; ignorance or inattention on his part seems a far more likely reason for these anomalies.

[37] Examples of golden-colored brass instruments from the Middle Ages and Renaissance are far too numerous to be listed here. It is essential, obviously, that we look at colored reproductions in order to make a correct judgment regarding this issue—something often made difficult by the preponderance of black-and-white illustrations in many iconographic studies. One exception worth consulting is Holme, *Medieval Pageant*, since almost all its illustrations are reproduced in color, and they include a number of the examples discussed in this paper.

[38] "And know that above all you are to work with as little silver as you can, because it does not last; and it turns black, both on a wall and on wood, but it fails sooner on a wall." Cennino d'Andrea Cennini, *Il libro dell' arte*, translated as *The Craftsman's Handbook* by Daniel V. Thompson, Jr. (New Haven: Yale University Press, 1933), 60. See also Daniel V. Thompson, *The Materials of Medieval Painting* (London: G. Allen & Unwin, 1936), 190.

[39] For a color reproduction of the two musical panels of the triptych, see Wangermée, *Flemish Music*, Ill. 68-69.

[40] For a particularly clear detail of the Bellini *Procession*, showing the musicians, see Paul Hills, *Venetian Colour: Marble, Mosaic, Painting and Glass 1250-1550* (New Haven and London: Yale University Press, 1999), Fig. 204. The contrast in color between the blackened silver of the trumpets and the

brownish color of the trombones is quite evident here. This fact seems to call into question the basis of Rodolfo Baroncini's recent report ("Zorzi Trombetta da Modon and the Founding of the Band of *Piffari* and *Tromboni* of the *Serenissima*," *Historic Brass Journal* 16 [2004], n. 8 [pp. 12-13]) that the celebrated trumpets of the doge, traditionally accepted as having been made of silver since their reputed acquisition in the twelfth century, were first actually made of silver beginning in 1524.

[41] Examples depicting light-colored shawms include the fresco cycle from Monza cathedral depicting *The Legend of St. Theodelinda*, Francesco Zavattari and Sons, 1444; *May*, illumination from the *Très riches heures de Jean duc du Berry*, ca. 1413-16; the *Feast of Alexander the Great*, ms. for Philip the Good (Paris, BN, Ms. franç 9342, fol. 13); and *Mary, Queen of Heaven*, Master of the St. Lucy Legend, ca. 1485 (Washington D.C., National Gallery, Samuel H. Kress Collection, 1952.2.13). For color reproductions of the latter image, see Jean-Yves Bosseur, *Music: Passion for an Art* (New York: Rizzoli International Publications / Geneva: Editions d'Art Albert Skira S.A., 1991), 36; André Chastel, *The Myth of the Renaissance, 1420-1520,* transl. from the French by Stuart Gilbert (Geneva: Editions d'Art Albert Skira, 1969), 55.

[42] Examples in which the shawms are all trebles: *Royal Wedding Feast*, in *L'histoire de Olivier de Castille et Artus d'Algarbe*, Flemish, mid-fifteenth century (Paris, Bibliothèque nationale, MS Fr. 12574, fol. 181v; reproduced in Bowles, *Musical Performance*, Pl. 44); *Music for King Ahasuerus's Feast*, Wilm Dedeke, ca. 1500, Corpus Christi Altar (formerly in the Burgkirche, Lübeck, now in the St. Annen-Museum; reproduced in *The New Grove Dictionary of Music and Musicians* [London/New York: Macmillan, 2001], s.v. "Tafelmusik," by Hubert Unverricht); *Dance at the Court of King Yon*, in Huon de Villeneuf, *Histoire de Renaud de Montauban*, II, illustrated by Loyset Liédet (Paris, Arsénal, Ms. 5073, fol. 117v: reproduced in Holme, *Medieval Pageant,* 68-69); *Serenading a Wedding Couple*, Villeneuf, *Histoire* (fol. 244v; reproduced in Bowles, *Musical Performance,* Pl. 23).

[43] Examples in which the shawms are all tenors: *Dance of the Wild Men*, from the *Chroniques d'Angleterre*, Jean Froissart, ca. 1400 (London, British Library, Ms. Harley 4380, fol. 1; reproduced in Holme, *Medieval Pageant*, 30-31); *Garden of Delights*, Cristoforo de' Predis or School, before 1470 (Modena, Biblioteca Estense, ms. 209 [Codex *De Sphaera*], fol. C 10r; reproduced in Wangermée, *Flemish Music,* Ill. 83); *Banquet Scene* from the Charles Martell Ms., Bruges, 1470 (Brussels, Bibliothéque Royale, Ms. 8, fol. 33v; reproduced in Bowles, *Musical Performance,* Pl. 41); *Banquet Scene* in Villeneuf, *Histoire* (fol. 148; reproduced in Holme, *Medieval Pageant,* 66-67).

[44] From surviving examples we know that the difference in length between treble and tenor (i.e., modern "alto") shawms was less than their difference of a fifth in pitch would imply; this is due to the proportionately longer bell extension of the treble shawm. Thus it is the presence of a key (with its concomitant barrel or fontanelle) rather than size that constitutes the main "giveaway" that the lower-pitched instrument is being portrayed.

[45] Two examples of banners on shawms are the following: *Triumph*, anon. Florentine, ca. 1475 (Musée Jacquemart-André, Paris); *Marriage Feast of St. Julian and St. Basilissa*, Master of St. Basilissa (Museum of Catalan Art, Barcelona). Both are reproduced in François Lesure, *Music and Art in Society* (University Park and London: The Pennsylvania State University Press, 1968), plates 57 and 82, respectively.

[46] Figure 13 represents the instrument before this restoration; for a detail reflecting the current state of this painting, see McGee, "Misleading Iconography," Figure 2 (p. 141).

[47] It should be borne in mind that it is not nearly so much the length of slide *per se* that is the limiting factor in building slide trumpets, but the reach of the human arm. As the instrument itself is increased in length, the reach of the arm decreases proportionately; this means there are few benefits to merely enlarging the instrument. Thus there seems to be a "floor" to the pitch of a viable instrument with single slide, regardless of its size (although the specific "holes" in its scale will depend upon its basic

pitch). It is this basic consideration that has made it difficult for modern builders and practitioners of the slide trumpet to arrive at a single solution as to pitch, based upon both historical information and practical experience; different pitches have competing advantages and disadvantages.

[48] This opinion is based upon experience with reconstructions of slide trumpets in looped form without stays or other bracings. Even slide trumpets of "normal" configuration—that is, ones without backwards-extending upper bows—need some device, whether it is the hand of the player or a mechanical binding, to stabilize the system and to keep the mouthpipe and bell branches from clanking against each other.

[49] I have left out of the discussion here the slight incurving of the mouthpipe and middle branches near the player's hand (as noted by McGee), since such bends, if actually present, would prevent the proper function of either a single or double slide.

[50] See Patrick Tröster, "More About Renaissance Slide Trumpets: Fact or Fiction?," *Early Music* 32, no. 2 (2004): 252-68, here 260-62.

[51] Tröster adopts Ross Duffin's convenient terminology for these two types of grip, although he rejects Duffin's reasoning concerning their comparative efficacy; see Ross W. Duffin, "The *trompette des menestrels* in the 15th-century *alta capella*," *Early Music* 17, no. 3 (1989): 397-402, here 398.

[52] It is central to Tröster's approach to pay close attention to the exact stance and grip of players in early illustrations, in order to wring out the maximum of information possible from such sources. However, some of his examples do not inspire confidence in the ability—or perhaps desire—of the artists responsible for them to capture absolute reality. For instance, Tröster's Illus. 6 (a detail from Heidelberg, Universitätsbibliothek, Ms. cpg.848—the Manesse Ms.) includes two trumpeters, both supposedly employing the "supporting grip"; in one case, however, the support consists solely of thumb and forefinger placed below the instrument at points less than a quarter of the way along its length, in complete defiance of the laws of gravity. I suspect the artist was more interested in the visual "rhyme" of the players' graceful arm positions than the feasibility of what—for one trumpeter, at least—it is an exaggeration to call a "grip." I am thus dubious regarding some of the information about performance Tröster attempts to extract from this illustration. Similarly, I believe Loyset Liédet, the artist responsible for his Illus. 14 (a detail of the *Dance at the Court of King Yon*; see note 40 above) is far too neglectful of the realities of all three instruments he includes in his *alta*-band trio for us to take seriously the exact grip of the brass player, much less for us to read it as evidence for a U-slide on a slide trumpet. (Note, for instance, the difficulty the artist has had in representing a plausible course for the looped tubing of the trumpet; we see at first a passable impression of a looped trumpet—until we look closely, that is, and try to follow the exact path the tubing is supposed to be taking. Note, too, the awkwardly drawn finger positions of the shawm players on either side of the trumpeter.) The level of representational accuracy clearly varies from artist to artist and even from work to work, but it is a mistake, I believe, to trust implicitly in this regard any artwork produced without the aid of optical equipment; such fidelity must be proved on a case-by-case basis.

[53] See *Theseus entering Troy*, anon. French, 1455-60 (Vienna, Österreichische Nationalbibliothek, Ms. 2617, fol. 39); detail (unfortunately reversed) reproduced in Keith Polk, "The Trombone, The Slide Trumpet and the Ensemble Tradition of the Early Renaissance," *Early Music* 17, no. 3 (1989): 389-97, Ill. 5 (p. 396). For a reproduction of the complete scene see Edmund Bowles, *Musikleben im 15. Jahrhundert* (Leipzig: VEB Deutchscher Verlag für Musik, 1977), 38.

[54] A problem from the world of stringed instruments may help illustrate this point. One of the "burning issues" in the history of bowed strings concerns the use of "flat" bridges, which are often found in the iconography of the medieval fiddle and early viola da gamba. (Such bridges, of course, prevent the playing of individual strings—except perhaps the top and bottom ones, if the bridge is high enough.) Looking at the iconography of the violin in the sixteenth and seventeenth centuries—a

period in which we know the instrument had to be provided with a rounded bridge—we still find occasional representations of flat bridges. This finding then suggests caution in taking literally all earlier depictions of flat-bridged bowed strings.

[55] Note that the view reproduced in Figure 21 is of the surface of the stay showing a left-handed player; the other side is basically a mirror image, showing a "normal," right-handed view. Readers of this *Journal* may find this illustration of further interest for a reason not directly related to the topic of this paper: note the brass pin uniting the stay to the bell (at the left of the picture), as well as the chain attached to it and securing it to the stay. (This is one of the few trombones I know of in which the bell joint can still be taken apart—or at least could in 1968 when I examined it—since the male-female joints between the upper bow and the straight elements have not been soldered together.) This I believe to be the original setup of this instrument (and thus probably of others in the same tradition), and helps explain the purpose of the small hole often found on original bell stays. (As in this case, such holes are generally placed asymmetrically—that is, closer to the bell rather than in the center of the stay.) It may help in understanding this picture to realize that it has been rotated here a quarter turn to the left for the purpose of illustrating the trombone-playing angel. Turning it clockwise a quarter turn replicates the original orientation as photographed: the chain was, in fact, dangling under the influence of gravity.

[56] A significant example of the persistence of the elongated bell yard in illustrations of trombones is to be found in Vienna, Österreichische Nationalbibliothek, Min. 77. This source is an execution in miniature technique on vellum of the program dictated by Maximilian I in 1512 for the *Triumphzug*, famous now in its rendition as woodcuts. The existence of the painted version has remained almost unknown to scholars in spite of its having been mentioned by Stanley Appelbaum in his preface to the 1964 Dover reprint of the *Triumphzug* (see *The Triumph of Maximilian I,* vi.). The woodcuts are anything but slavish copies of the paintings, and the two versions differ in many respects. Leaf 9 of the painted version contains the illustration of the "fünf Schalmeyer, Pusauner vnnd krumphorner" (corresponding to Pl. 20 of the woodcuts) and Leaf 11 contains the "Canterey" (Pl. 26 of the woodcuts); in both miniatures the trombones are depicted with bells extending below the lower bows. (As we have seen from Fig. 6 above, the trombone in Pl. 20 of the woodcuts has a more "normal" configuration; the trombone in Pl. 26 is for the most part hidden from view, preventing comparison.) Interestingly, the trombones played by the mounted "Burgundisch pfeyffer" in Leaves 41-42 of the miniatures (corresponding to Pls. 77-79 of the woodcuts) are not depicted with such extended bells. Numerous other notable differences in the rendition of instruments are to be found between the two versions, and the overall greater accuracy of the woodcuts in this regard brings new respect for the powers of observation of Burgkmair and Altdorfer.

For a somewhat more extensive (but still preliminary) discussion of Ö.N. Min. 77, its relationship with the now fragmentary Cod. 2835, and their relationship with Maximilian's dictated program and its realization in woodcuts see Herbert W. Myers, "The Idea of 'Consort' in the Sixteenth Century," *Musicque de Joye: Proceedings of the International Symposium on the Renaissance Flute and Recorder Consort, Utrecht 2003*, ed. David Lasocki (Utrecht: STIMU, 2005), 31-60 (here 49-53).

[57] One might reasonably eliminate the Funhof example (Figure 16) as well, since there is little to suggest it possesses a slide of any kind; however, removing it does not affect the time envelope in any way.

[58] An interesting early example of a stay on a slide trumpet—the first, to my knowledge—is to be seen in *The Hermit and Two Musicians Before the Table of St. Severin* by the Master of St. Severin, early sixteenth century (Cologne, Wallraf-Richartz Museum); reproduced in Georg Kinsky, *A History of Music in Pictures* (Leipzig: Breitkopf & Härtel, 1929), 59, no. 2.