The Treatise on Perspective: Published and Unpublished

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The Perspective Treatise in Ruins: Lorenz Stoer, Geometria et perspectiva, 1567

No German writer after Dürer had anything original to say about perspective, at least not until Kepler. The perspective “treatises” published in Germany in the sixteenth century were mostly practical handbooks addressed to other artists or albums of complicated geometric objects drawn in perspective. ¹ Neither kind of book introduced any new theoretical knowledge. The authors were either goldsmiths or second-rate painters, not mathematicians, architects, or humanist scholars. They tended to be interested in solid objects and planar patterns rather than in space. In Italy perspective had provided a whole new vocabulary for thinking about the beholder and the subject, vista and spectacle, public and private space, the urban scene. The preoccupation with space had brought perspective out of the painter’s workshop and to the attention of learned readers. There was little of that in post-Reformation Germany. The German books on perspective seldom made it clear why the technical procedure of projecting three-dimensional objects onto planes would be of interest to anyone other than practicing artists.

In the decades after Dürer’s death in 1528 several competing practical handbooks on proportion and perspective were in print. The early German perspectivists were quick to publish their instructions and examples, in most cases without patronage. Evidently they thought they could make money from book sales to other artists and artisans. Northerners were generally quicker to push their material into print and had a less puristic notion than Italians about the function of illustrations. This was true of humanists and antiquarians as well. Leon Battista Alberti’s De pictura circulated for more than a century in manuscript copies before it was published. The first important text on perspective to find its way into print, and the first account of perspective accompanied by practical illustrations, was De artificiali perspectiva, by Jean Pélérin (Viator), published in Toul in 1505. ² Four years later the Nuremberg miniaturist and printer Georg Glockendon came out with a plagiarized version of Pélérin, Von der Kunst Perspectiva. But Pélérin’s method had already found its way into the latest edition of the ideal vehicle for German intellectual publicity: it appeared in 1508 as an appendix to that frequently reprinted illustrated handbook of universal knowledge, the Margarita philosophica of Gregor Reisch. ³

In 1525 Albrecht Dürer published his Unterweysung der Messung, in which he expounded the simplest accurate method for making perspectival projections. But Dürer’s books were too difficult for most painters. Dürer’s projection method was disseminated in Germany through readable vernacular handbooks, especially the Schön nützlich Bühlin und Underweisung der Kunst des Messens, published by Hieronymus Rodler.
in 1531 and reprinted in 1546. Rodler illustrates perspectival construction with didactic diagrams, for example, a woodcut showing a colonnade with arched windows and an opposing wall with a single mullioned window converging on a common vanishing point (fig. 1). The orthogonals are printed in red. Some later books by German artists furnished examples and patterns of perspectival constructions but said virtually nothing about the method. These include Heinrich Vogtherr’s *Ein frembds und wunderbars Kunstbüchlin* [Strasbourg, 1537], a kind of pattern book; Erhard Schön’s *Underweysung der Proportion und Stellung der Bossen, mostly on proportion* [Nuremberg, 1538, and later editions]; and Sebald Beham’s *Das Kunst- und Lerbüchlein Malen und Reissen zu lernen* [Frankfurt, 1546, with posthumous reprints]. Less primitive is Augustin Hirschvogel’s vernacular treatise *Ein eigentliche und grundliche anweisung in die Geometria*, of 1543, comprising a set of written instructions for constructing geometric figures and a twenty-page supplement with woodcut diagrams. There is also an edition of the second part, with more refined, etched illustrations instead of woodcuts.

The most important German text on perspective of the midcentury was the discussion in the Vitruvius commentary by Walter Riviús [Ryff] of Strasbourg, *Der turnembsten notwendigsten der gantzen architektur angehörsigen mathematischen und mechanischen Kunst... Unterrichtung zu rechtem Verstand der lehr Vitruvii*, published in Nuremberg in 1547. Riviús had already edited the Latin text of the Ten Books on Architecture [Strasbourg, 1543], and in 1548 he published a German translation, the *Vitruvius Teutsch*. Riviús was neither an artist nor an architect, but a physician and minor humanist and the author of books on diverse subjects. His *Unterrichtung* begins with a lengthy treatment “der newen Perspectiva,” itself divided into books on geometry, perspective, and painting and sculpture. The rather confusingly organized text is illustrated with an interior elevation of the cathedral of Milan as the principal modern exemplar of Vitruvian architecture [here following Cesare Cesariano’s 1521 translation of Vitruvius] and with many woodcuts of projections of solids, tiled floors, foreshortenings, and architectural interiors. Riviús’ comments on perspectival construction methods and proportion canons are drawn from prior authors, including Alberti and Piero della Francesca. The book was reprinted in 1558 and 1582.

The 1571 *Perspectiva* of the Nuremberg goldsmith Hans Lencker teaches the method of perspective through illustrations of precisely constructed geometric solids and other objects in eleven full-page woodcuts, such as a cube demonstrating a skeletal, semiregular polyhedron and a spiral staircase [here improving smartly on the staircase attempted a generation earlier by Rodler] (fig. 2). In his preface Lencker promises to give the reader not the useless “hull” of the doctrine of perspective but the “kernel.” He notes that perspective is a noble art known to physicians and other authorities on nature and the heavens. Lencker explains his methods and instruments in a German-language text but insists on the primacy of the visual evidence, his “examples.”

None of the German artist-authors of the sixteenth century matched Walter Riviús’ compulsory achievement. Yet it would be a mistake to dismiss them all as opportunists and dull followers trying to profit from the lingering prestige of Dürer. Behind some of these artists’ books it is possible to see the contours of genuine but incompletely realized intellectual ambitions. The publications need to be seen in a context of chronic career crisis in the decades after the Reformation. Dürer and the example of his career...
had raised the hopes of a whole generation of younger artists. There was plenty of talent. But after the Reformation there simply was not much work for painters and sculptors. Vogtherr wrote pointedly about the chronic career crisis in the preface to his *Kunstbüchlin*, and Hirschvogel framed his book on geometry with a similar lament.

The Reformation was chiefly responsible for the artists’ predicament. But part of the trouble was self-inflicted. The generation of artists born between 1490 and 1510, trained before the Reformation choked off the main sources of patronage, all fell under the spell of Dürer’s brilliant career. (Vogtherr was born in 1490, Schön in 1491, Beham in 1500, and Hirschvogel in 1503.) Dürer’s writings and his reputation with scholars and princes convinced younger artists of the dignity of their calling. Suddenly they were too impatient to take part in huge, collaborative altarpiece projects, where a single entrepreneur-cum-artist sat on top of a pyramid of apprentices and craftsmen for whole decades. Dürer’s example seemed to show that by selling prints or books young artists could become independent without having to marry the daughter of the workshop head. Replication technology made it possible to market one’s talent in small units and to advertise that talent. But not many artists of the next generation succeeded in recapitulating Dürer’s career. And only a few artists secured positions or steady work with princely patrons or convinced patrons to pay for publication projects. Fending for oneself very often meant working for a book or print publisher. The publisher had the hardware and the capital and therefore called the tune. In other words, the incompleteness of many of these handbooks may have had to do with underachievement and a misdirection of talent and not merely incompetence.

The other kind of German perspective book—the alternative to the practical handbook—published the appealing “results” of perspective, that is, ideal constructions of fantastic, three-dimensional objects. The perspectival “album” emerged as a type only in the second half of the century. These publications were finer than the earlier handbooks, but they did not necessarily teach the method of perspective, nor did they make any contributions to the theory of perspective. For example, the treatise *Des Circels und Richtscheytys*, by the goldsmith Heinrich Lautensack (Frankfurt, 1564), shows how to construct a tiled ground plan according to the simplest possible method. But essentially the book gives illustrations of geometric solids drawn in good perspective and only a few instructions on how to do it. When Lautensack died in 1568, incidentally, 557 unsold copies of his book were found among his effects. Meanwhile, the first published treatise of the goldsmith Hans Lencker, the *Perspectiva literaria*, a volume of twenty-two beautiful engraved plates of three-dimensional letters of the alphabet, published in Nuremberg in 1567, dispenses with theory entirely. The volume begins with a brief text in German, but the main selling point is the remarkable sequence of engravings showing letters as well as rings, pyramids, crosses, stars, tori, and a nautilus shell lying about in disarray or leaning against blocks. After publishing this book and his didactic *Perspectiva* of 1571, Lencker got a job teaching perspective to the elector of Saxony in Dresden.
The most splendid example of this coffee-table sort of treatise was the goldsmith Wenzel Jamnitzer’s *Perspectiva Corporum Regularium*, published in Nuremberg in 1568 and dedicated to Emperor Maximilian II, a collection of fifty engraved plates of stereometric solids. In his preface Jamnitzer complains about the incompleteness and the errors of earlier treatises. He claims to have spared no cost and effort in finding the right method. He invokes the Platonic solids, but ultimately the method is taught by example, not precept. Some of the astonishing figures in Jamnitzer’s book are skeletal, or *durchsichtige*, models, like the dodecahedron handled by Johann Neudörffer in the well-known portrait of 1561 by the Flemish painter Nicholas Neuchatel. In other engravings Jamnitzer places rings among randomly scattered beams and crosses, balances cones on pieces of furniture, or, as in the plate reproduced here, leans a torus, or “wreath,” against a beam together with several “elevated” pyramids and a cross on a kind of platform with a railing (fig. 3). We know that Jamnitzer invented a mechanism involving a string for making perspectival projections. But Jamnitzer’s drawings seem to show that in constructing his fantastic figures he did not employ any instruments or an especially elaborate perspectival method.

Jamnitzer’s bizarries sometimes served as practical models for adventurous craftsmen. Painters and goldsmiths had used prints to sell designs to other craftsmen almost since the invention of print technology. It was a way to tap into the market for luxury artefacts. But many of these pattern books offered more than this. Geometric solids drawn in perspective seem to have provoked Neo-Platonic meditations. And whimsy and sheer pleasure in ingenuity were part of the story of perspective from the beginning, even if underrated or suppressed by theorists and historians from Vasari to the present. The figures of Lencker and Jamnitzer delighted the eye and the mind. Their books had a much wider potential readership than did the practical handbooks.

The scramble for patronage and income in the wake of the Reformation, on the one hand, and the glorified pattern books of Lencker and Jamnitzer, on the other hand, were the immediate contexts for the publication under scrutiny in this essay, the *Geometria et perspectiva* of Lorenz Stoer. Lorenz Stoer was apparently the son of Niklas Stoer, a Nuremberg woodcut designer active from the 1520s to the 1540s. Niklas was apparently a pupil of Hans Springinklee, the pupil of Dürer. There are very few documentary footths for Lorenz. Paul von Stetten, the eighteenth-century Augsburg historian, mentioned his woodcut designs for intarsia. Stetten also attributed to Stoer, on the basis of the monogram, a pair of incised stone tablets dated 1553 and 1564. Stoer is first securely documented on 8 April 1555, as the recipient of a royal copyright: King Ferdinand I, at the request of Lorenz Stoer, forbids (in the paraphrase of Voltelini, the nineteenth-century editor of the document) anyone to reprint any text or illustrations from the *lineamenta quaedam artis geometricae ad perspectivam*, collected in a single book with the title *Perspectiva a Laurentio Stoero in lucem prodita*, which Stoer wants to publish, on the pain of confiscation of the reprint and a fine of ten gold marks.

This privilege was issued in Augsburg. Two years later, in 1557, Stoer gave up his citizenship in Nuremberg and moved to Augsburg. The book announced in 1555 never appeared. Or so it seems: no copies survive.
Hier sind sichtbare geometrische Figuren, die von Lorenz Stoer, Maler, Bürger im Augsburg, in farbigem Druck dargestellt wurden. Und...
In 1567, twelve years after the receipt of the royal privilege, a book did finally appear under Lorenz Stoer’s name entitled *Geometria et perspectiva*—a kind of book. It amounts to a title page and eleven woodcuts. There is no text at all. In fact there is no typography. The title page says in xylographic roman capitals, “Geometria et Perspectiva,” followed by, in xylographic black letter, “Hierinn Etliche // Zerbrochne Gebew // den Schreinern // in eingelegter Arbeit dienstlich // auch // vil andern Liebhabern zusonder // gefallen geordnet und // gestelt / Durch // Lorenz Stöer // Maller Burger inn Augspurg" (containing various ruined buildings, useful to intarsia workers, as well as for the special pleasure of many other amateurs; ordered and arranged by Lorenz Stoer painter and citizen in Augsburg) [fig. 4]. The title page also announces the privilege granted by Ferdinand, who had died three years earlier.

The title is ringed by an oval ornamental band printed in light brown. On the band appears the following ambiguous motto: “Wer woltt Da jederman Recht thun / Kainer Würt sichs auch unterston” [Who would do right by everyone! No one would even try]. Superimposed on the oval band and printed in two colors, light brown and black, are four of the five regular polyhedrons and four irregular solids. The octahedron, icosahedron, tetrahedron, and dodecahedron are labeled around the outside of the ornamental band in roman capitals. Two of the other solids are labeled “octaedron elevatum solidum,” which amounts to a pair of intersecting tetrahedrons or pyramids, and “hexaedron,” in fact a pair of intersecting hexahedrons, or cubes.

Securing a copyright for printed pictorial material was no routine procedure. Legal protection of printed images does not predate Dürer’s publication of the Small Passion, Large Passion, and Life of the Virgin woodcuts in 1511. In a chronological table of documented copyrights of artistic material,
Hansjörg Pohlmann lists only one example in the 1520s and another in the 1530s. Stoer's copyright appears in Pohlmann's table as one of the earliest.²¹

Stoer's book makes no effort to teach perspective or to provide rules; it simply gives results, pictures in perspective. The eleven numbered woodcuts all use the same formula: a complex stereometric solid or combination of solids juxtaposed to a kind of dreamlike thicket of solid volutes, brackets, and frames, a scrollwork trellis. The polyhedrons and the scrollwork are mounted in the foregrounds on terraced platforms before landscape settings with masses of round-arched ruins and sometimes obelisks, columns, or staircases. On page 1 a double pyramid balances on a prismatic polyhedron, perhaps a cube (Stoer's foreshortenings are hard to read). A pair of bricks balance on a crossbeam among the ruins in the background (fig. 5). On page 9 a spiked ball is suspended inside a perforated vault, and in the lower right corner the scrollwork curls to fit the frame (fig. 6). On page 10 the foreground solid threatens to swivel like a gun turret, as if guarding the sweeping, undamaged staircases in the background. Abandoned wooden beams balance among the ruins (fig. 7). In many of the woodcuts slender trees have sprouted among the solids and scrollwork. The ruins are tufted with grass. Broken columns, tubes, and disks lie about in the foreground. There is only one human figure in any of the scenes, a tiny man under an arch in the middle distance on page 4, almost lost between lurching scrollwork and a cube teetering on a dodecahedron (fig. 8). The landscapes with trees, mountain ranges, castles, and settlements are perfectly plausible; that is to say, they descend from the landscape backgrounds of Dürer prints. The architectural ruins are almost plausible. But the monstrous scrollwork trellises in the foreground are pure displays of perspectival virtuosity and create an effect of outrageous fictionality. Although these trellises seem
to be drawn correctly, it is not at all obvious that they could ever be built.

Each of the eleven woodcuts bears the monogram LS foreshortened and inscribed on a ground plane in the foreground. On the eleventh and last page of the first edition, below the woodcut, the word “FINIS” appears in typographic roman capitals; on the next line, in xylographic black letter, reads: “Gedruckt zu Augsburg durch Hanns Rogel Formschneider.” The second edition, which is the one reproduced here, is otherwise identical and is also dated 1567; here the two final lines are replaced with “Gedruckt zu Augsburg durch Michael Manger,” with “FINIS” on the line below, both set in type (fig. 9). It is virtually certain that the Hans Rogel printing of Geometria et perspectiva preceded the Michael Manger printing. The xylographic scrip: used in the Rogel colophon is the same as the script used on the title page. There is also a later edition that omits the royal privilege on the title page and gives in its place the name Stefan Michelpsacher and the date 1617; on page 11 of this printing there is no colophon.22 It seems that Stoer was alive and living in Augsburg in 1620 and 1621.23

Stoer did get a painting commission after the publication of the book. In 1569 the Augsburg patrician and collector Hans Fugger, grandnephew of Jakob Fugger the Rich, paid Stoer 91 gulden, a considerable sum, for a group of paintings that included a view of the castle of Babenhausen, a Fugger holding since 1539. By comparison, Fugger in 1580 paid only 42 gold gulden (about 55 ordinary gulden) for a group of five paintings by the Cremonese master Vincenzo Campi, a painter of middling gifts but after all an Italian.24 Fugger’s account book refers to “Lienhart Störmaller”; Lorenz may have been confused here with the Augsburg cabinetmaker Lienhart Stromaiyer, who in fact had died in 1567.

Our understanding of this strangest of perspective “treatises” has recently been supplemented by several extraordinary discoveries. The University Library in Munich owns a folio volume of 336 pen-and-watercolor drawings of stereometric solids by Stoer, until now virtually unnoticed.25 The volume belonged to the library of the bishop of Freising in 1696 and came to the University Library in the nineteenth century. Various drawings in the album bear the dates 1562, 1564, 1584, and 1599. They seem to have been bound together about 1600. The volume comprises several independent series or campaigns of drawings. The first series, entitled “Die fünff corpora regularia,” runs to 139 pages, two solids to a page. The solids in all their permutations are more complex than anything we have seen in the woodcuts of 1567. Some of the drawings are a bit lumpy or approximate, but Stoer keeps them anyway and treats them all to the same brilliant and thorough watercoloring in a wide range of hues. Pages 140 to 210 are another series of geometric solids, sometimes with smaller objects perched on top. Page 211 is dated 1599 and announces a series of pyramids and crosses. Pages 220 to 247 are a series of “wreaths” made of pyramids arranged with other objects on platforms, much like the arrangements in the albums published by Lencker and Jamnitzer. Page 244 is signed

9. Lorenz Stoer, Geometria et perspectiva, 1567, 11, woodcut
Houghton Library, Harvard University
The University Library has recently acquired a smaller, independent drawing in pen and gray wash of a sphere and other figures mounted on a platform, monogrammed on a small tablet. The sheet is related to the drawings in the album but is not consonant with them. An inscription in an old hand reads “Lorenz Störhler in Augsburg 1567,” the date perhaps based on knowledge of the publication *Geometria et perspectiva*.

A pen-and-watercolor drawing in the Veste Coburg, however, is closely related to the “sample” title pages in vertical format in the University Library album. This sheet depicts a kind of geometric spindle, or “tree,” slung with rings and wreaths. It bears the title “Geometria et Perspectiva Corpora Regulata et Irregulata,” the privilege, and the monogram on a tablet, as do several of the University Library drawings; however, here the word “Augustanus” appears below the tablet, uniquely in Stoer’s known work.

In 1997 a group of six single-leaf woodcuts by Stoer appeared on the print market in Munich. Like the volume in the University Library, these prints are completely unknown.
to the scholarly literature. Two are chiaroscuro woodcuts of perspectively constructed architectural ruins with no inscription; more on these later. The other four bear the words “Geometria et perspectiva,” as well as other titles and mottos. They appear to be something like trial balloons for the treatise so hopefully announced in 1555.

One of these woodcuts, monogrammed L.S, shows an octahedron imbedded in a hexahedron with the corners cut off; this object is balanced on an adjusted cube labeled “Hexahedron elevatum solidum” (fig. 11). To the left and right are a cube with the corners removed and a tetrahedron resting on a cube. The display is flanked in front by a pair of scrollwork flourishes. The sheet gives the title “Geometria et Perspectiva” in roman capitals and a subtitle in black letter: “Da sein Sechss Corpora Allegiert / Geometri Inns Perspectif gfiert” [These are six solids joined, by geometry brought into perspective]. A cartouche at the lower edge reads, “Curn Gratia et Privilegio S. Caesar-eae Mai,” which implies that the sheet dates from after 1558, when Ferdinand was elected emperor.

A sheet closely related to this one but in horizontal format shows another balanced pile of complex intersecting solids flanked by several regular polyhedrons, something like the drawing from the University Library album illustrated in figure 10 but much more basic (fig. 12). The objects are labeled; there is a single scrollwork bracket at the lower left, and as in the vertical woodcut just discussed, there is a monogram and a privilege. The sheet is again titled “Geometria et Perspectiva.” The subtitle, in black letter, reads, “Fünff Corpora Regularia / Sambt mer Corporn unreguliert // Inns Perspectiff gwiiss gerissen da. / Auss Geometria recht gefiért” [Five regular solids together with further irregular solids, accurately drawn in perspective; derived accurately from geometry).

Quite different in conception is a vertical sheet with colossal scaled solids set among overgrown urban ruins (fig. 13). The scene is framed by a round arch with complex solids in the spandrels. A tiny man at the rear marvels, not unreasonably, at a skeletal polyhedron perched on a crumbling arcade. Two other men admire a monster in the foreground, an icosahedron inside a skeletal dodecahedron. Here too we find the monogram and the title “Geometria et Perspectiva” in roman capitals, although no privilege. But the motto in black letters is unexpectedly pointed: “Durch Armuth...
Württ Khunst herfürbracht // So Inn Reichthum bleibt unbedacht (Art is brought forth in poverty, and in prosperity neglected).

A fourth woodcut seems to belong to a final phase of experimentation before the 1567 publication (fig. 14). It is exactly like the eleven woodcuts of the book—polyhedrons on a platform, scrollwork trellis, ruins in landscape—except that there is a title ("Geometria et Perspectiva") at the top and there are two men standing at the left looking at the balanced objects. It is the same size as the woodcuts of the book and has the same triple border.

Still another moment in Stoer’s thinking is captured in a large monogrammed drawing in Munich, in pen and mostly brown, green, and gray watercolor (fig. 15). The drawing is nearly square in format and much larger than the pages of the 1567 publication, larger even than the drawings in the University Library. The watercolors have faded and are less intense than those in the album. Here several elegantly accoutred but rather poorly drawn figures, some carrying measuring instruments, admire a group of geometric solids in an open, vaulted hall. The grandiose urban setting is neatly described without ruination or picturesque effects.

The polyhedrons themselves are as improbable as ever. Perhaps this was a presentation drawing for a potential patron.

Stoer maintained his interest in polyhedrons and their accurate projections on plane surfaces and presumably his hopes of a luxury publication from the mid-1550s, when he obtained the privilege, until at least 1599, the last date in the Munich album. The fascination with geometry and perspective is not hard to account for. Mathematics was a prestigious supplement to a painter’s career. In the preface to his 1571 Perspectiva Lencker boasted that his drawings were exempla of “a high, beautiful, subtle art, well-known to the physicists and naturalists and astronomers.” The example of Dürer and his treatises was still vivid. The juxtaposition of the complex solid to the winged thinker in Dürer’s engraving Melencolia I was a visual reminder of the importance of geometry to the ambitious artist. And just as it had been for Martin Schongauer and Dürer, the route out of craft and repetition was shown by the goldsmiths, whose minds habitually moved back and forth between object and surface design. Solid geometry was a way of systematizing these formal transformations.

13. Lorenz Stoer, Geometric Solids and Figures among Architectural Ruins, woodcut Hartung & Hartung, Munich

14. Lorenz Stoer, Geometric Solids and Two Figures in Landscape, woodcut Hartung & Hartung, Munich
But Stoer failed to produce either a treatise or a luxury volume of engraved plates comparable to Lencker’s or Jammitzer’s. Stoer clearly did not publish the book intended and announced in 1555. Perhaps he learned while writing that he was not sufficiently original or organized to produce a didactic handbook or treatise on perspective; perhaps he never intended any such thing. It is also possible that he did write a text but found no printer willing to undertake the up-front costs of publication. At any rate, he failed to do justice in print to the full range of his perspectival studies represented in the Munich volume of drawings. Unlike Lencker, for example, Stoer evidently found no noble patron to underwrite his book.

What Lorenz Stoer does seem to have learned in these years was that while intellectualty may have been flourishing in Nuremberg, the real market for his designs was in Augsburg. About the middle of the century Augsburg emerged as the center of luxury cabinetmaking in Germany. The saws used in Augsburg apparently cut the thinnest layers of veneer. Augsburg cabinets and writing desks of the 1550s and 1560s were being exported to Spain. About the time he moved to Augsburg, presumably, Stoer began adapting his designs to make them more immediately useful to intarsia workers. And on the title page of the 1567 publication Stoer appeals directly to the “Schreiner in eingelegter Arbeit,” even if in the next breath, with the word “Liebhaber” (amateurs), he seems to insist on the intellectual independence, the liberality, of his pursuits.

There was no shame in providing source material for the intarsia workers. Even Wenzel Jammitzer’s elegant designs were transposed to furniture. Liselotte Möller found a writing desk in the Museum für Kunsthandwerk, Frankfurt, with geometric solids in intarsia derived directly from Jammitzer. Still, Stoer must have been disappointed by his own publication. The woodcuts are graceless and flat. This dull, lifeless quality makes them appealing to some twentieth-century tastes, but few beholders at the time could have preferred Stoer’s woodcuts to Jammitzer’s refined and animated engravings. Admittedly Stoer was not a gifted draughtsman; the weak figures in the drawing in the Graphische Sammlung in Munich reveal his limits. Still, Stoer had to simplify the designs of his polyhedrons for the benefit of the intarsia workers and then put himself at the mercy of his woodcutter, presumably Hans Rogel or someone in his shop. The cutting of the woodblocks entailed a loss of quality that Stoer could ill afford.

The clearest hints of Stoer’s frustration are the strange mottos on the title page of the 1567 publication and on one of the new woodcuts. The motto on the ornamental band on the title page, again, reads, “Who would do right by everyone? No one would even try.” The motto on the independent woodcut reads, “Art is brought forth in poverty, and in prosperity neglected.” These formulas, presumably devised by Stoer himself, seem to belong to a tradition of artists’ laments in the face of uncomprehending or parsimonious patrons. There was also a tradition of pessimistic, moralizing inscriptions on intarsia cabinets that may have prompted or inspired Stoer’s complaints. An inscription on a cabinet dated 1569 in the Museum in Ulm, for instance, reads, “Wann
der mensch bedeckt wer er wer und wan er wer kommen her oder was aus im solte wer-
den so wurde er frummer auf erdenne" [If man were to reflect on who he is and when he arrived here or what was to become of him, he would become more pious on earth].

It must be conceded that Stoer’s woodcuts had no perceptible echo in the works of other painters. One scholar tried unconvincingly to link the bizarre paintings of Lelio Orsi to Stoer’s prints. Only somewhat more plausible is the suggestion that Stoer was a source, alongside Virgil Solis, for a series of prints dated 1673 by the Dutch artist Johann Oswald Harms.

The polyhedrons and even the ruins in Stoer’s woodcuts linked them with contemporary perspective treatises. But at the same time, odd geometric objects and crumbling buildings belonged to an independent repertoire of subjects and shapes peculiar to the best intarsia. German intarsia designs of the mid-sixteenth century typically involved landscapes, ruined buildings, and fantastic scrollwork or “cartouche-ornament” confections. The front panel of a well-known writing desk in the Victoria and Albert Museum attests to the taste for surreal, ruin-strewn landscapes. The desk is signed by “Master HS” and dated 1560 (fig. 16).

The intarsia workers favored bits of classical stage props like trophies, armor and weapons, vases, and obelisks. The strange, flat scenes are sometimes occupied by birds or animals but are never peopled. With their silence and their tendency to animate the inanimate, these scenes are uncanny and melancholy in mood. The intarsia panels look like jaded parodies of the pictorial narratives of Dürer’s time. The antique and vegetally encrusted ruins were the sort that might have appeared in any Nativity painting of the early sixteenth century, before the crisis of iconography brought about by the Reformation. But the intarsia settings were occupied, not by holy personages, but instead by jocky, outlandish objects. The emptiness and silence of these settings are emphasized by odd details of the sort we have seen in the Stoer woodcuts: bricks perched precariously on beams, for instance, or the bucket and trowel among the ruins of page 2, as if abandoned by a mason (fig. 17). The insistence on disposing the objects and architectural bits so that they form interesting and unexpected patterns in the two-dimensional plane contributes to the disorientation. Perspective has the effect of flattening out the world,
pressing together objects that are actually separate.

To compose these weird scenes the intarsia workers relied heavily on prints. The architectural and landscape settings, the ruins, and the scrollwork constructs in the intarsia panels were all generally borrowed from ornamental prints, although the intarsia workers usually avoided direct piracy. The bizarre scrollwork in the intarsia panels and, for that matter, in Stoer’s woodcuts derive from Netherlandish prints. The ultimate source of this implausible ornamental vocabulary is Fontainebleau. Forms that Rosso Fiorentino developed for stucco frames got disseminated through prints by Léonard Thiry. In the 1550s and 1560s the idea was taken up by the Netherlanders Cornelis Bos, Cornelis Floris, Jacob Floris, Hans Vredeman de Vries, and Hans Liefrinck. At the time this sort of ornamentation was described as “cartouches” or “compartments.”

In Germany one of the most important graphic sources for architectural ruins and the whole Roman vocabulary of triumphal arches, historiated columns, obelisks, domes, arcades, balustrades, and portals was the series of engravings by Virgil Solis titled Buchlin von den alten Gebewen, published c. 1555. Solis’ images were themselves copies of engravings by Jacques Androuet Du Cerceau after drawings by Léonard Thiry. Another key source was the Roman views published by Hieronymus Cock in 1551, Praecepta aliquot romanae antiquitatis ruinorum monumenta.

No known intarsia panel copies an entire woodcut by Lorenz Stoer, point for point. The two upper door panels on the large cabinet in Ulm mentioned above, however, seem to cite the polygonal well in the foreground of page 11 of the 1567 publication (see fig. 9). Möller claims a direct quotation of Stoer’s woodcuts in another Victoria and Albert cabinet, although this is not obvious from her illustration. The 1952 exhibition catalogue Aufgang der Neuzeit went so far as to attribute the fantastic designs on the major Augsburg intarsia cabinet of the period, the so-called Wrangelschrank of 1566, to Stoer. But Liselotte Möller in her monograph on the Wrangelschrank reasonably rejected any direct link.

Cabinetmakers and intarsia workers must also have purloined drawings directly from painters. Jörg Syrlin, Peter Flötner, and others were providing intarsia designs by the early sixteenth century. A small group of such drawings has been associated with Lorenz Stoer. A pen-and-wash drawing in Cologne with musical instruments and scores, a kind of musical still life, bears Stoer’s monogram and the date 1557, the year of his move to Augsburg. A pair of pear-shaped drawings in the Germanisches Nationalmuseum in Nuremberg, clearly designed as intarsia models, were attributed to Stoer by the Aufgang der Neuzeit exhibition in 1952, apparently on the basis of the scrollwork, and have been accepted in two subsequent exhibitions. They are done in pen and watercolor and show architecture, scrollwork, stereometric forms, and, in one case, a large bird. But the bits of scrollwork in the Nuremberg drawings are twisted elegantly in space in a way that none of the Stoer woodcuts ever attempts.
There is not enough similarity to clinch the attribution to Stoer.49

Stoer’s designs have exactly that perspectival self-consciousness that would generate atmosphere on a furniture panel but might look contrived and frivolous in a narrative painting. That is, we are given the sense of there being too many objects parallel and perpendicular to one another, the sense of a scene arranged for our benefit rather than a scene glimpsed or spied, a scene externally rather than internally motivated. It is that overdetermined look we know from the illustrations to some perspective treatises, like those of Jean Pélerin or Hieronymus Rodler. We also know the look from the paintings of early perspective fanatics like Paolo Uccello or Michael Pacher. With Stoer the effect is one of layered zones of order and increasing disorder, from the ideal solids to the ruins—crumbling but still maintaining the shell of an architectural logic—to the scrollwork and finally to the realm of flowing nature: mountains, branches, the flight of birds. The combination of overdetermined pattern and underdetermined content was a mark of luxury and sophisticated taste.

Another aspect of the appeal of Stoer’s designs for cabinetmakers was their link, through the medium of woodcut, back to the keenly remembered heroic epoch of German art, the generation of Dürrer. This is even clearer in the two newly discovered chiaroscuro woodcuts (see figs. 19, 20). The medium of chiaroscuro woodcut had been pioneered by the German artists Hans Burgkmair and Lucas Cranach in the first decade of the century.50 The cabinetmakers and no doubt Stoer realized that the sinewy Germanic woodcut offered an aesthetic counterpoise to Jamnitzer’s refined, international-looking engravings. The round-arched, overgrown ruins in the woodcuts and the intarsia panels recalled prints and paintings of the Nativity and the Adoration of the Magi by Dürrer, Altdorfer, Huber, and others (a good example is Dürrer’s Adoration of the Magi from the Life of the Virgin woodcut series, B. 87). Even the finest midcentury intarsia cabinets from Augsburg and Ulm had a slightly rustic, vernacular, local flavor.

What about the perspective itself? We see from the drawings in the Graphische Sammlung and the University Library in Munich that Stoer drew his polyhedrons and certainly his architectural settings freehand, that is, without any systematic prior construction. The objects and the buildings in the 1567 woodcuts are not so impressively accurate. Lines that look as if they ought to be parallel in reality, and therefore converge on a common vanishing point on the picture surface, instead splay awkwardly. In the scrollwork trellises foreshortened planes perpendicular to the picture plane are pulled slightly into the horizontal so that they will display more surface, making the perspective constructions look almost isometric. This appears to be an accommodation to intarsia. Intarsia wants plane surfaces that double as projections—as foreshortenings—and as two-dimensional patterns. Overly acute projections produce thin, sliverlike shapes that are difficult to read in the medium of wood.

There is evidence of considerable tension between the painters and the intarsia workers in this period. The intarsia workers worried that painters would invade their market by painting scenes directly on the furniture or by painting on paper that could be glued to the wood panels. In 1568 the cabinetmakers protested to the Augsburg city council that these “forged” intarsias could not replace the real article, “wie man so scharpff Dinge allhie einlegt, welches kainen Maler möglih ist, von Farben nachzukommen, dann die Farben geben es nicht so rein als das Holtz” (for objects are inlaid so sharply that no painter could rival it in colors, since colors do not render it as purely as wood).51

Border disputes between guilds in Augsburg had been sharper ever since Emperor Charles V suspended the ancient guild regulations in 1548, after the city’s defeat in the Schmalkaldic War.52 From that time the guilds were controlled by the city council. Artists could bring their grievances directly to the council. Early in the century the only way to circumvent the guild rules had been with sheer size and wealth. The head of a big sculpture workshop, like Adolf Daucher, who in the 1490s had been identified as a “Kistler,” or cabinetmaker, had been able to poach on the territory of neighboring guilds.53 In fact the decline of guilds may have been advantageous to artists like Lorenz Stoer, for
they could appeal for help directly to the emperor or to the cities, just as artists had in the lean years of the late 1520s and 1530s.

The Augsburg cabinetmakers did not only want to prevent the painters from painting directly on furniture; they also resented paying too much for designs. In a trial in Augsburg in 1564 the guild of cabinetmakers accused one of their own, Peter Heyss, of paying too much money for a set of colored perspectival drawings by a certain Balthasar Bingkesser, presumably a painter. Heyss paid 39 gulden instead of what the guild said the drawings were worth, namely, 10 to 12 gulden. The guild conjectured that Heyss was trying to "bribe" a potential client by paying too much. Heyss responded that the craft of furniture making necessarily depended on the work of other craftsmen, not only painters but also sculptors, etchers, turners, locksmiths, and gilders. The guild did not see why Heyss needed colored drawings. Heyss responded that he did not require colored drawings and that he wished Bingkesser had not colored them.54

One sees how the publication of designs fit into this system of dependency. An artist would get a jump on his colleagues by multiplying his designs and offering them cheaper. He might then win a larger share of the total resources budgeted by the cabinetmakers for buying designs than he would by selling to one craftsman at a time. In addition, he got the bonus of publicity and name recognition. The disadvantage from the cabinetmakers' point of view was that the designs were shared by hundreds of others and the elite client would be unhappier to find the same design on his neighbor's sideboard or writing desk. Clearly the intarsia worker, even if he relied on printed models, would do well to adapt and rearrange before cutting his shapes. This may explain why so few surviving intarsia panels directly copy known prints.

The use of replication technology to amplify the handmade pattern book was nothing new. It goes back to the beginnings of the printed image. And artists had long tried to have it both ways, producing usable designs that would also make for interesting prints suitable for a collector's album. It was still true of mid-sixteenth-century decorative printmakers like Jacques Androuet Du Cerceau or Hans Vredeman de Vries. For example, the twenty oval perspectival views by Vredeman de Vries published by Hieronymus Cock in the early 1560s were quite fine enough to be collected.55 These beautiful frontal views of fantastic classical architectural settings, some still "under construction," in oval cartouches both horizontal and vertical, were copied many times and reprinted three times. The book was dedicated by Cock to Count Ernest of Mansvelt, presumably in hopes of patronage. But the "oval perspective views" were essentially a pattern book for intarsia workers: Karel van Mander in 1604 described Vries' publication as "Ovalen, Perspecten, met de Puncten in't midden, voor de Inlegghers" (Ovals, perspectival representations with the vanishing point in the middle, for intarsia workers).56 Lorenz Stoer might very well have known these etchings. The architectural setting for the large drawing in Munich [see fig. 15] looks almost like an adaptation of one of Vredeman's designs [fig. 18].57

Major new evidence in the Stoer story is the two chiaroscuro woodcuts, part of the group of six that appeared on the market in 1997 [figs. 19, 20].58 These woodcuts, printed with black and green blocks, both show round-arched ruins without any geometric
The chiaroscuro woodcuts also provide a missing biographical link. The technique connects them closely with a group of chiaroscuro woodcuts by the little-known Regensburg artist Erasmus Loy.\cite{60} Loy’s designs, such as the fantastic architectural setting with a single, doll-like figure, in black and rust-colored blocks and without any internal linear modeling (fig. 22),\cite{61} were clearly offered as models for intarsia. Loy was named in documents as a “Fertiger von Kunst- und Flattenpapier,” that is, a maker of “wallpapers” or “paper imitating wood grain.” There are many early examples of printed sheets of paper not used as models for ornament but glued directly onto walls or furniture—just as the Augsburg cabinetmakers had feared.\cite{62} Horst Appuhn found an early-seventeenth-century Bavarian chest with glued-on prints imitating intarsia, in this case woodcut copies of Loy’s chiaroscuro woodcuts.\cite{63} Some of the chiaroscuro woodcuts by Erasmus Loy assembled by Walter Strauss may have been meant for this purpose. The pear-shaped watercolors in Nuremberg attributed to Stoer may have been destined for musical instruments, which admittedly required paper imitations since they would lose their tone if inlaid with real intarsia.\cite{64}

Erasmus Loy was intensely concerned about copyright. He obtained an imperial privilege, which he seems to have subsequently stamped on his chiaroscuro woodcuts. In 1557 and 1561 he complained to the Regensburg city council that the cabinetmaker Utz Mayer had been printing copies of his designs despite the privilege.\cite{65}

The biographical link between Lorenz Stoer and Erasmus Loy is disclosed by another public complaint. The target of Loy’s animus in this case was Stoer’s publisher Hans Rogel, a versatile artistic entrepreneur born in 1532.\cite{66} Rogel was a schoolmaster and published handbooks on writing and arithmetic. He designed and cut woodcuts and sold books. He made models and maps of Augsburg and at one point held an official municipal position. In 1557, the year Stoer moved to Augsburg, Rogel submitted a complicated complaint against Loy to the city council. Apparently Loy had successfully charged Rogel with copying and publishing his designs, his “printed papers and solids or strapwork. Figure 20 has a bucket balanced on the rim of a well, recalling the bucket in page 2 of the Geometria et perspective (see fig. 17). Like the woodcuts in the 1567 publication, both of the new chiaroscuro woodcuts are monogrammed in the foreground, and they have the same triple border. But they are several centimeters taller than the woodcuts in the book and seem to be independent sheets.

Figure 20 was almost certainly the direct model for the intarsia panels on the lower doors of the cabinet in Ulm mentioned above (fig. 21).\cite{59} The intarsia panel frames a landscape of ruined arches. Much of the internal detail has been altered, but the general disposition of the ruins, the well in the foreground, the broken column at the top, and the upright torus on the left are all taken directly from Stoer’s woodcut. The cabinet is dated 1569 and thus gives a terminus ante quem for the chiaroscuro woodcuts.
wallpaper that looks like wood. The council had restrained Rogel from using them for a period of one year. Rogel conceded in his complaint that he had made copies of the woodblocks. But in order to clear himself of further suspicion he asked the council to hold the blocks in safekeeping until Loy's privilege expired.

Here is a hypothesis that explains the new Stoer chiaroscuro woodcuts that so closely resemble Loy's. Rogel may have decided at some point to circumvent Loy entirely by hiring Stoer to design new woodcuts for him on the model of Loy's. The flock of birds in Loy that reappears in slightly different form in one of Stoer's chiaroscuro woodcuts (see figs. 22, 19) is a clue. So is the technique of using two-tone blocks and no lines, which until the reemergence of the Stoer woodcuts in 1997 was considered unique to Loy. The use of the triple border in both the new chiaroscuro woodcuts and the Stoer publication suggests that Rogel was responsible for both. It is not hard to imagine Rogel agreeing to publish Stoer's "book" once the relationship was established.

As was explained above, Rogel's printing preceded Michael Manger's. Manger was an Augsburg printer who established himself in 1570 by marrying the widow of the printer Matthias Franck and taking over his press. Manger issued hundreds of titles over the next three decades. He must have bought the blocks from Rogel soon after the publication of the first edition because there is no deterioration of the blocks. Presumably he did this with Stoer's complicity since Stoer still had the privilege.

The triangular tangle between Loy, Rogel, and Stoer is emblematic of perspective's troubles. Between the fifteenth and seventeenth centuries the liaison between perspective studies and art making came under more and more strain. The problem lay in the fact that perspective is primarily a system for projecting onto surfaces the results
of vision. This is a technical problem that has a definitive solution. It is not a problem that holds the attention of art makers forever.

But there is another way to explain the continuing fascination that perspective held for many artists. It requires thinking about perspective not as the representation of a viewed world but as a procedure for generating two-dimensional pattern. Pattern, not optical experience, becomes the starting point for the artist. This reversed approach to perspective, which is the approach of the intarsia worker, in turn yields strange meanings. This approach asks the beholder to work backward from an intrinsically interesting pattern toward a fictional world that was never viewed and was in fact generated only by the laws of perspective applied in reverse. The intarsia makers, for instance, started from a particular surface effect that was rooted in the properties of wood and the technology of cutting: sharp contours, flat patterns, absence of internal modeling. The improbable fictional worlds implied by these patterns turned out to have a strange appeal of their own. Intarsia’s opaque surfaces and antinaturalistic manipulations of formal rules without internal motivation generated uncanny, antihumanist landscapes and cityscapes, hypothetical stage settings for soulless marionette shows.

Intarsia exaggerates a fundamental operation of perspective itself: meaning emerges out of the inorganic assimilation, the pressing together, of dissimilar things on a picture plane. Delight is taken in the paradox of depth emerging out of flatness, of a world made of slivers of wood. Mario Praz quotes the seventeenth-century Jesuit Daniello Bartoli comparing intarsia to emblems:

Is not the source of wonder, and therefore of delight in such works, the fact that one sees one thing used to express another? the deception being all the more innocent in that in the whole composition of a false thing there is yet no one element which is not true. The same happens when we use anything taken from history, from fables, from nature and art, to represent something in the moral order which it is not.

This dimension of formalist manipulations and the generation of new meanings greater than the sum of their parts was never foreign to perspective. This is revealed by the early historical connection between perspective studies and intarsia. The association between perspective and intarsia is much deeper than the almost accidental link between Lorenz Stoer and the Augsburg cabinetmakers would suggest. The connections between the early study of perspective in Florence and the local prowess in intarsia has been noted and interpreted by André Chastel and Hubert Damisch, among others. Vasari himself, after describing Brunelleschi’s contributions to the study of perspective, added this comment: “Ne restò ancora di mostrare a quelli che lavoravano le tarsie, che è un arte di commettere legni di colori; e tanto gli stimolò, che fu cagione di buono uso e molte cose eccellenti che hanno recato e fama e utile a Firenze per molti anni” (He also demonstrated it to workers in intarsia, which is an art of composing colored woods; and he stimulated them to such an extent that he brought about good practice and many excellent things that brought fame and profit to Florence for many years). There is reason to believe that linear perspective was understood by many, from the start, as an algorithm for generating new surface patterns whose appeal was
the interplay with spatial illusion. This ludic aspect appealed especially to obsessives like Paolo Uccello, whose experiments with faceted tori, or mazzocchi, were closely related to contemporary intarsia designs. And in the later sixteenth and early seventeenth centuries, as the fictions got wilder, perspective—the “legitimate” construction, instrument of rational illusionism—was paradoxically apt to be right in the thick of things.

As Damisch has pointed out, perspective did not always fit cleanly within the humanist program for art. Vasari’s slightly condescending tone toward perspective studies when he mentioned Brunelleschi’s teaching it to the intarsia makers can be read as an early warning sign of the blowup between art and perspective. The German intarsia panels and the paper designs for them were only a later, more urgent sign. In both cases intarsia undermined the orthodoxy about the significance of perspective and about the centrality of the project of optical realism to the Renaissance. It is as if intarsia were a loose thread in the tapestry of Renaissance art: to pull at it is to risk unraveling the whole fabric.
NOTES


2. See L. Brion-Guerry, *Jean Pélerin Visitour: se place dans l'histoire de la perspective* (Paris, 1862), and Martin Kemp, *The Science of Art: Optical Themes in Western Art from Brunelleschi to Seurat* [New Haven, Conn., 1990], 64–66. See Kemp generally on the content of the early perspective treatises. An exception to Pelerin's priority in print is the discussion of perspective in the published treatise of Pomponius Gaucicus, *De sculptura* [Florence, 1504] [see Robert Klein, *"Pomponius Gaucius et son chapitre de la perspective," in* La forme et l'intelligible* [Paris, 1976], 237–277).

3. The first edition of Gregor Reisch's *Margarita philosophica* was published in Strasbourg in 1503, followed by several later editions, some pirated.

4. *The Schön natürliche Büchlin und Unterweisung der Kunst des Messens* was written under Johann II of Pfalz-Simmern, a Wittelsbach duke with ties to humanist circles in Heidelberg. Rodler was his secretary and a book printer. The unnamed author of the treatise probably was not Rodler but an artist or possibly even the patron himself [see Elisabeth Bonnemann, *Die Preise des Hieronymus Rodler in Simmern* [Leipzig, 1938], 11–12, 22–23).

5. There is a copy of Hirschvogel's 1541 treatise at Harvard University's Houghton Library.

6. Vitruvius, *De architectura libri dece* [Como, 1521], B 6–B 7v.

7. Hans Lenczer, *Perspectiva* [Nuremberg, 1571], A 8v. On Rodler, see above, n. 4; the staircase in the earlier book appeared on the verso of F 1.


16. See, however, James Elkins' eccentric study, *The Poetics of Perspective* [Ithaca, N.Y., 1994].


20. Quarto, 21.5 × 16.4 cm. The only copy of this book I know of in the United States is at the Houghton Library, Harvard University. There are copies at the Germanisches Nationalmuseum in Nuremberg, Veste Coburg, and the British Library, and the Graphische Sammlung in Munich has a loose set of the plates. The book is reproduced in its entirety in Nuremberg 1969. There is also a facsimile edition with a brief accompanying text by the sculptor Eberhard Fiebig [Frankfurt, 1972].

22. The sequence of woodcuts in the 1617 edition was changed (see Nuremberg 1969, no. 77). Michalschabel also sponsored a new edition of Hans Lenczer's Perspective in 1617, which he had printed in Ulm by Johann Meder with a new preface and title page and a portrait of Lenczer by Lukas Kilian.


24. Georg Lill, Hans Fugger und die Kunst (Leipzig, 1908), 130 and n. 1, 137.

25. Munich, University Library, 2 Cod. ms. 592a. The volume was discussed in Dorothea Pfaff, Lorenz Storer, "Geometria et Perspectiva" (master's thesis, University of Munich, 1998).

26. Munich, University Library, 2 Cod. ms. 592a, 11.7 x 13.7 cm.

27. Kunstsammlungen der Veste Coburg, inv. no. Z 300; 38.0 x 28.1 cm. See also Welt im Umbruch: Augsburg zwischen Renaissance und Barock, 2 vols. (exh. cat., Stadt Augsburg) [Augsburg, 1980], no. 661; and From a Mighty Fortress: Prints, Drawings, and Books in the Age of Luther, 1483–1546, ed. Christiane Andersson and Charles Talbot (exh. cat., Detroit Institute of Arts) [Coburg, 1983], cat. no. 15 (nos. 194 and 195 in this catalogue are pages from the 1637 publication).

28. Five of these woodcuts were sold at auction by Hartung & Hartung, Munich, on 15 May 1997 (catalogue 86, nos. 4325–4329). The sixth was not included in the sale and is at this writing still with Hartung & Hartung.

29. Hartung & Hartung 1997, no. 4327, 27.1 x 21 cm, location unknown.

30. Hartung & Hartung 1997, no. 4329, 23.2 x 22.7 cm, now in the Staatliche Graphische Sammlung, Munich, inv. no. 1997:14 D.

31. Hartung & Hartung 1997, no. 4328, 26.7 x 19.7 cm, location unknown.

32. Hartung & Hartung, Munich (not in the 1997 auction), c. 16 x 21.5 cm.

33. Munich, Staatliche Graphische Sammlung, inv. no. 21268, 46.3 x 45.5 cm [see Heinrich Geissler, Zeichnung in Deutschland: Deutsche Zeichner 1540–1640 (exh. cat., Staatsgalerie Stuttgart), vol. 1 [Stuttgart, 1972], 326, no. F2].


37. Ulm, Ulmer Museum, inv. no. 2124 [see Ulmer Museum: Das Kunstwerk des Monats 136 (October 1990)].


40. The best survey of this material is Möller 1956, with an extended discussion of Stoor's possible role in the intarsia business and a catalogue of surviving pieces. See also the account in Christian Scherer, Technik und Geschichte der Intarsia (Leipzig, 1891), 90–94.


44. Möller 1956, no. 70, fig. 179.

45. See Aufgang der Neuzeit: Deutsche Kunst und Kultur von Dürers Tod bis zum Dreissigjährigen Kriege, 1530–1650 (exh. cat., Germanisches Nationalmuseum) [Nuremberg, 1952], no. M 14; and Möller 1956. The Wrangelschrank, named for a seventeenth-century Swedish general who owned it, is in the Westfälisches Landesmuseum in Münster. It bears the date 1566 and an unidentifiable housemark.

46. Möller 1956, 48. See also Helmut Flade, Intarsia: Europäische Einlegekunst aus sechs Jahrhunderten (Munich, 1986), 118–121.


48. Nuremberg, Germanisches Nationalmuseum, Kapsel 650, Hz 5181, 33.8 x 21.6 cm, and Hz 5182,
35.0 × 23.0 cm [see Nuremberg 1952, nos. W 15, W 16, Nuremberg 1969, nos. 77, 78, and Stuttgart 1979, nos. F 1, a and b].

49. Drawings of a nude man and a head of a cow in Erlangen, although monogrammed and dated 1572, are not clearly related to Stoer [Erlangen, University Library, inv. nos. B 782, B 783] [see Stuttgart 1979, 234]. A pair of drawings in the Louvre, horse studies with inexplicable collector’s attributions to Stoer, were rightly deattributed by Louis Demonts, Musée du Louvre: inventaire générale des dessins des écoles du Nord: écoles allemande et suisse, vol. 2 [Paris, 1938], nos. 432 [inv. no. 18997], now Swiss, after 1550; and 820 [inv. no. 18803], now mid-seventeenth century.


51. Fritz Hellwag, Die Geschichte des deutschen Tischlerhandwerks [Berlin, 1924], 457.


54. Hellwag 1924, 470–471; on intarsia workers’ use of drawn sketches and models, see 466–472.


57. The illustration here is taken from the 1601 reprint by Theodor Galle, identical to the first printing except for the inscription on the cantabulature and the number 20 in the lower left corner.

58. Hartung 1997, nos. 4326 and 4323; both are illustrated in color in the auction catalogue. The woodcut illustrated in figure 19, 23.8 × 17.6 cm, is in a private collection, the location of the woodcut shown in figure 20, 24 × 17.8 cm, is unknown.

59. Ulm, Ulmer Museum, inv. no. 1124 [see Ulmer Museum: Das Kunstwerk des Monats 136 [October 1990]; and Flade 1986, figs. 88 and 89].


61. Boston, Museum of Fine Arts, W. G. Russell Allen Collection, inv. no. AL 422, 29.3 × 16.8 cm. [see Strauss 1973, 384, no. 626; and Strauss 1975, 619, no. 2].


63. Appuhn and Heusinger 1976, 91, fig. 65.

64. Stuttgart 1979, 1:234, no. 8. F 1, a and b; Appuhn and Heusinger 1976, 92.

65. Appuhn and Heusinger 1976, 92.


67. The document is translated in Strauss 1975, 617.


in Francia, tra le quali è celebre quella, che il Rè Francesco fece in un suo palazzo a Strasburgo, dove fono quattro scale infine una sopra l'altra, tutte aperte. Il modo di disegnare quelle scale è colta trita per la via ordinata, si come da Pietro dal Borgo, & da Giovanni Caffi Francese è particolarmente insegnato; dove di mostrano, che l'atura che sì la pianta, come è la punta Z, te ne fà un profilo da una banda, & con ello, & con la pianta si trovano tutti li termini de gli scalini, & cominciano dal primi che sono nel principio delle due scale alli due punti A, B, si legnano tutti van dentro all'altrò. Si potranno anch'esse scale disegnare con le Sagme, con le quali questi due disegni son fatti, pigliando per la sagma eccesso il profilo di esse scale, & per la diagonale quella che dalli punti diagonal dei dalla pianta si fonderà, si come di sopra delle Sagme de' Piedefalali, & delle colonne, & pilastri sì detto.

Il disegno X, è di quelle scale aperte, che si reggono senza hauer nel mezzo, posamento né fanno, essendo gli scalini fermati con la tefla nel muro, & messi talmente l'una sopra l'altrò, che vanno reggendo l'altrò, & gli stessi scalini fanno volta alla scala: delle quali è fatta una tonda, & fempa, molto bella, & alta, nella fabbrica di S. Pietro, che và da alto è basso, & con li scalini di treuertino, da lapopo della Forra prettissimo Architetto di detta fabbrica. Vn'altra simile fatta fempa, aperta nel mezzo con li scalini di treuertino, che fanno fcalino, & volta, sì fatta in forma ouata per farle da Belvedere alla Galeria; fatta fare da Noftro Signor Papa Gregorio xiii, nel Vaticano, da Ottaviano Mascherini, che è riuicita molto bella, alla cui fformiglia, né fà al presente vn'altra nel palazzo, che per Sua Santità fabbrica a Monte cauallo, la quale è aperta, & ouata, ma si regge in sì le colonne, simile a quella fatta da Bramante in Belvedere. Ma a quella ouata ci è più difficoltà, che non hobe Bramante in quella tonda, atto che nella circolare tutte le linee vanno al punto, & centro del mezzo, che nella ouale vanno a diversi punti. Quelle si difegnerà in Prospettiva nel modo che della precedente si è detto, tanto aperta, come fennata: & si può fare ancora che giri attorno a una colonnà, & fa aperta di tuorti; delle quali...