

DÜRER, Albrecht

Nuremberg 1471 — Nuremberg 1528

Underweysung der messung, mit dem zirckel und richtscheyt, in Linien ebnen unnd gantzen corporen, durch Albrecht Dürer zu samem gezogen, und zu nutz allen kunstlieb habenden mit zu gehörigen figuren, in truck gebracht, im jar. M.D.XXV.

Nuremberg, [Hieronymus Andreae, called Hieronymus Formschneider?], 1525

Folio (290 × 210mm), 90 leaves, complete, collating A–N⁶ O–Q⁴ (blank Q⁴ retained), not foliated or paginated. Printed in Gothic type, 54 lines per page (folio G⁴ recto). Errata (25 lines) on Q³ verso. First state of the title-page (Bohatta 1a). Sheets of quires A–K with a pot watermark (Meder 158); in quires L–P a crown watermark with height 120mm (evidently Meder 20, reproduced oversize), in final blank a bull's head watermark with height 156mm (comparable to Meder 84, see our fig. 24).

Approximately 200 illustrations designed by Dürer and cut by Hieronymus Andreae, numbered 1–50 [50 *bis*] in book one; 1–19 [20] 21 [21 *bis*] 22–23 [23 *bis*] 24 [24 *bis*] 25–29 [30] 31–36 in book two; and 1–4 [4 *bis*] 5–6 6 [sic] 7–16 16 [sic] 17–27 [unnumbered illustrations of letter forms] 29–34 [34 *bis*] 35–42 34 [*i.e.* 43] 44–51 [51 *bis*] 52–62 [two unnumbered illustrations] in books three and four. Woodcut on folio Q³ recto signed with monogram *AD* and dated 1525; woodcut no. 36 on C⁵ verso and no. 26 on K¹ recto both printed on cancel slips pasted over woodcuts, as usual; woodcut no. 59 on P⁴ verso and no. 61 on Q¹ recto are extended by means of printed pasted slips, as usual. In this copy, the upper margins of H² and H³ were folded in by the binder (18mm) to safeguard the entire design.

Vellum tab affixed to margin of title-page. In excellent state of preservation.

Bound second in our Sammelband, after (1) Vitruvius and before (3) Pèlerin (for description of binding, see above).

First edition (first state) of *Instruction in measurement with compass and ruler*, the first of the three theoretical treatises published by Dürer towards the end of his life, one of the earliest mathematical works published in the German vernacular, and among the most beautiful printed books of the German Renaissance.¹

The treatise is aimed at painters, sculptors, architects, goldsmiths, stonemasons and other craftsmen and explains the application of practical geometry to drawing and the principles of perspective. Dürer wrote it to repair omissions that he perceived in the training of young German artists, as the first part of the projected series *Speiss für Malerknaben* ('Nourishment for young painters') which he commenced in 1508–1509. In the dedicatory address to Willibald Pirckheimer, Dürer explains that German apprentices have 'never learned the art of measurement, without which no one can become a true artisan. It is the fault of their masters who themselves were ignorant of this skill. It is this skill which is the foundation of all painting'.²

CONTENTS

The work is divided into four books, beginning with an exposition of linear geometry, the construction of plane curves (the spiral of Archimedes, logarithmic and tangential spirals, conchoids) and helices, the construction of the so-called *folium Dureri* ('Dürer's leaf'), and the construction of conic sections, the latter being perhaps Dürer's most substantial contribution to mathematics. He considers all the conics and illustrates methods of constructing the parabolic shape of a burning mirror by use of vertical and horizontal sections and for determining the oblique section of a cone (see our fig. 21). Although theoretically sound, the latter technique is difficult to operate, and the actual shape of the section obtained is egg-shaped rather than

- 1 On the variant states of this first edition, see Hans Bohatta, *Versuch einer Bibliographie der kunsttheoretischen Werke Albrecht Dürers* (Vienna 1928), no. 1a; and Alvin Jaeggli, 'Bibliographical excursus', in *Albrecht Dürer. Underweysung der messung*, facsimile reprint edited by Christine Papesch (Zurich 1966), pp.210–215. Reprints and translations are enumerated by Matthias Mende, *Dürer-Bibliographie*, Bibliographie der Kunst in Bayern, Sonderband (Wiesbaden 1971), pp.451–456. Dürer's *Unterricht zu Befestigung der Stett* was published in 1527 and his *Vier Bücher von menschlicher Proportion* appeared posthumously in 1528.
- 2 Albrecht Dürer, *The Painter's Manual: a manual of measurement of lines, areas, and solids by means of a compass and ruler*, translation & commentary by Walter L. Strauss (New York 1977), p.37.

mit einem anderen puncten aber also piß das du die ganzen lauten



Dürer's second visit to Italy (1506) he had become acquainted with Piero della Francesca's techniques of perspectival transformation and with aspects of Leonardo da Vinci's work, very probably through the medium of Luca Pacioli. Like Leonardo, Dürer was fascinated by geometrical ratios and the problem of transforming one geometrical form into another without loss of area or volume. He first provides four solutions to the 'Delic' problem of doubling the volume of a given cube, then presents two methods of perspective and shadow projection.

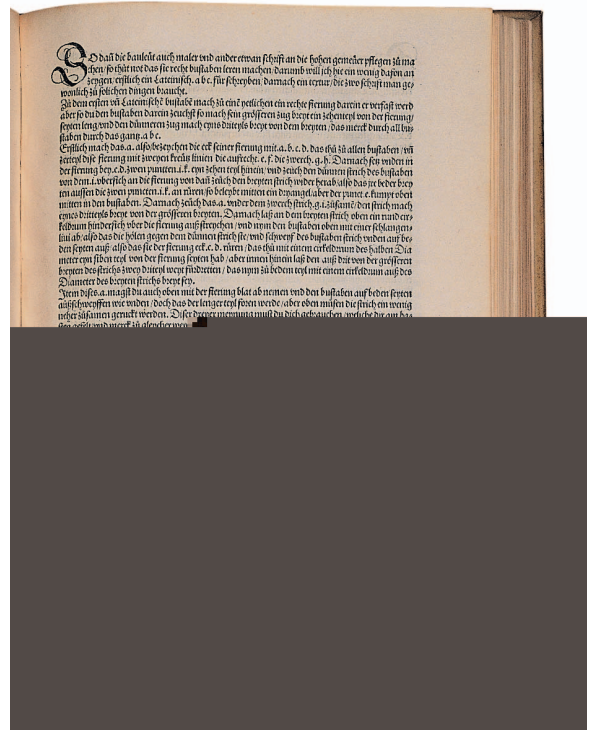
Dürer's first method uses plan and elevation (book four, fig. 56) and corresponds to a system employed by Piero. It is a method of limited practicality to artists and Dürer therefore devised an abbreviated method for constructing a square 'tile' as a ground plan on which forms could be erected. This so-called 'shorter way' (book four, fig. 59) corresponds to the procedure followed by Alberti. Dürer also drew on Jean Pèlerin's treatise *De artificiali perspectiva*, which he knew either in the Nuremberg 1509 edition (a translation of the Toul 1505 edition with exact copies of its woodcuts) or in the Toul 1509 edition (a revision by the author of the 1505 Toul edition with altered and new woodcut illustrations).⁵

Included in the fourth book are Dürer's depictions of two mechanical devices to aid the artist in making portraits and determining perspective. The first woodcut ('Der Zeichner des sitzenden Mannes', folio Q2 recto, reproduced opposite) shows a draughtsman using a glass plate to outline a portrait of a sitting man. Dürer explains that this instrument is good for all those who wish to draw someone's likeness and who are not sure of their skill. The device was used by Leonardo and most probably also by Alberti and there is evidence that Dürer had constructed one about 1515. The other woodcut shows two draughtsmen plotting points for the drawing of a lute ('Der Zeichner der Laute', folio Q3 recto, see our fig. 19). This unwieldy device seems to have been Dürer's personal invention.⁶

5 Strauss (*Op. cit.*, note 2), pp.28–29; *Albrecht Dürer 1471–1971*, exhibition catalogue Germanisches Nationalmuseum (Nuremberg 1971), no. 634; Kemp (*Op. cit.*, note 3), p.66.

6 *Albrecht Dürer 1471–1971 (Op. cit.*, note 5), nos. 641–642; F.W.H. Hollstein, *German engravings etchings and woodcuts*, VII (Amsterdam 1962), pp.219, 258. The operation of these devices is explained in *Dürer in America: his graphic work*, edited by Charles W. Talbot (Washington, DC 1971), pp.353–354, no. 215; also by Kemp (*Op. cit.*, note 3), pp.171–172 and figs. 330–331.

7 David Landau & Peter Parshall, *The Renaissance print, 1470–1550* (New Haven & London 1994), pp.217–218.



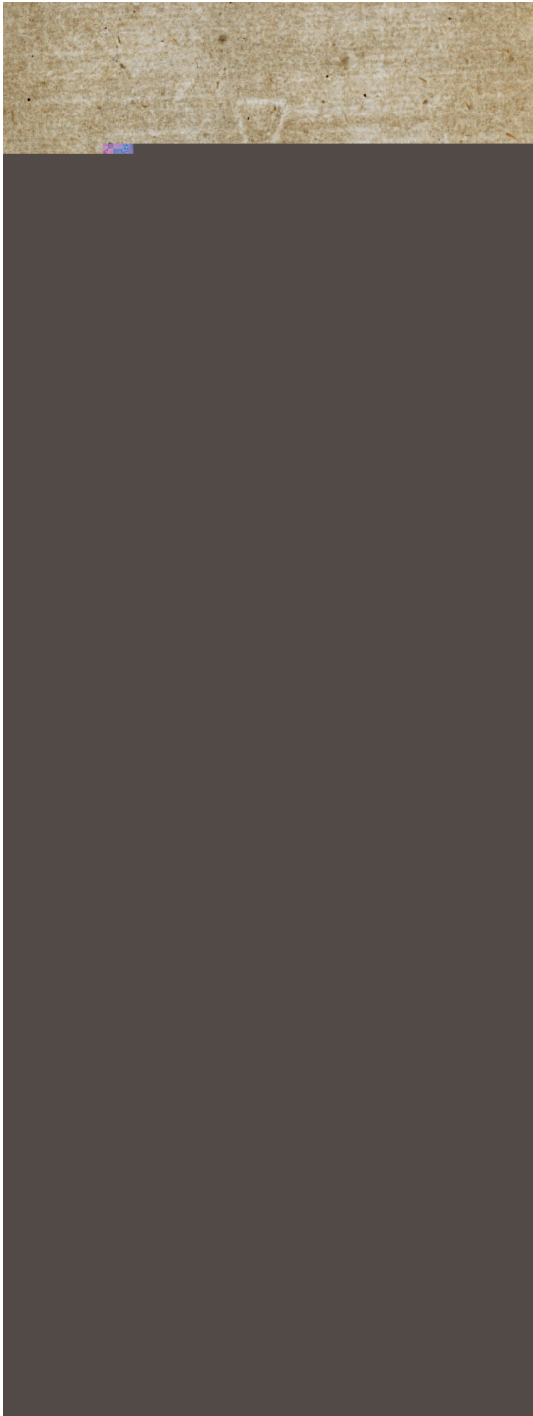
23. Construction of Roman letters (folio K2 recto).

Reproduced opposite 22. Artist using a glass to take a portrait, woodcut of perspective apparatus by Dürer (folio Q2 verso).

THE EDITION

Dürer himself supervised the layout and printing of the book, which was done in a Gothic type designed by the Nuremberg *Schreibmeister* Johann Neudörfer (1497–1563). The laborious tasks of cutting steel punches of Neudörfer's letters and woodblocks of Dürer's many illustrations were performed by Hieronymus Andreae (died 1556), a *Formschneider* educated at the University of Leipzig and trained as a blockcutter in Augsburg, where he worked on several of the Emperor Maximilian's woodcut projects in association with Dürer (Andreae cut all 192 blocks of Dürer's *Triumphal Arch* and also those for the *Small Triumphal Car*).⁷

Andreae became a citizen of Nuremberg in 1523 and over time established a large workshop, in which was printed in 1527 Dürer's *Die Befestigungslehre* and in 1528 Dürer's *Die Proportionslehre*. He is first entered as a book printer in the register of the Nuremberg Council on 27 March 1527, so if the *Underweysung der Messung* was indeed printed by Andreae – a general assumption – it must be the first, or a very early product of his press. Two phrases in



24. Watermark occurring in the seldom retained blank folio Q4 (compare Meder no. 84).
Reproduced with enhanced contrast. Height of mark 156mm.

the book seem to imply the treatise actually was printed in Dürer's own workshop: 'durch Albrecht Dürer in truck gebracht' (folio A1 recto) and 'das ich das selb auch wider drucken will, und auß lassen geen' (folio Q3 recto, see our fig. 19).⁸

A postscript warning against unauthorised copying contains an announcement of an enlarged second edition. This was not issued until ten years after Dürer's death, printed by Hieronymus Andreae, setting the text from Dürer's own copy of the 1525 first edition annotated with corrections and additions.⁹

REFERENCES Joseph Meder, *Dürer-Katalog. Ein Handbuch über Albrecht Dürers Stiche, Radierungen, Holzschnitte, deren Zustände, Ausgaben und Wasserzeichen* (Vienna 1932), nos. 268–269 and p.285; Staatliche Museen zu Berlin, *Katalog der Ornamentstichsammlung der Staatlichen Kunstbibliothek Berlin* (1939), no. 4607; Herbert M. Adams, *Catalogue of books printed on the continent of Europe, 1501–1600, in Cambridge libraries* (Cambridge 1967), D–1057 (bound with *Die Befestigungslehre*, wrongly described as a constituent part); *Printing and the mind of man. A descriptive catalogue illustrating the impact of print on the evolution of Western civilisation during five centuries* (London 1967), no. 54; Margaret Stillwell, *The Awakening of interest in science during the first century of printing 1450–1550* (New York 1970), no. 161; Luigi Vagnetti, *De naturali et artificiali perspectiva: bibliografia ragionata delle fonti teoriche e delle ricerche di storia della prospettiva*, Studi e documenti di architettura (Florence 1979), pp.315–320, no. Ellb7; *Verzeichnis der im deutschen Sprachbereich erschienenen Drucke des XVI. Jahrhunderts* (Stuttgart 1985), D–2856; Diana H. Hook & Jeremy M. Norman, *The Haskell F. Norman Library of Science & Medicine* (San Francisco 1991), no. 665

- 8 The 1511 edition with Latin text of Dürer's *Apocalypse* is subscribed 'Impressum Nurnberga per Albertum Durer pictorem', suggesting Dürer had sufficient equipment – possibly inherited from his godfather, Anton Koberger – to also carry out printing of the *Underweysung der Messung*; compare Jaeggli (*Op. cit.*, note 1), pp.211–213.
- 9 Dürer's personal copy is in the Bayerische Staatsbibliothek, Munich; see *Thesaurus Librorum. 425 Jahre Bayerische Staatsbibliothek*, edited by Karl Dachs (Wiesbaden 1983), no. 73. Presentation copies are cited by Fedja Anzelewsky, 'Dürers theoretische Schriften und ihre Leserschaft', in *De captu lectoris. Wirkungen des Buches im 15. und 16. Jahrhundert*, edited by Wolfgang Milde & Werner Schuder (Berlin 1988), p.31.