A Brighter Vision: European Colour Printing 1450–1830

Ad Stijnman

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General Chronology of European Colour Printing

- Antecedents
- o Colour Printing
- o Decade of Change

The following chronology is a selection of objects, techniques, documents and events that mark developments in the history of European colour printing. *Antecedents* (pre-history to 1450) lists the precursors of European colour printing from pre-history. *Colour Printing* (1450–1830) gives an overview of the themes discussed in the present volume. *Decade of Change* (1830–1840) sees the Baxter process, electroplating, chromolithography, Daguerreotype, the introduction of the postage stamp, and the mechanisation of presses, moving printing texts and images into a definitely new era and into the start of the modern graphic industry.

Antecedents

pre-history cave paintings with hands dipped in red paint pressed against the walls and red paint sprayed around hands held to the walls are found globally

7500–5700 BCE flat stamps with high-relief designs for decorating a support with a colourant in Çatalhöyük, southern Turkey

5300–350 BCE rolling stamps with high-relief designs for decorating a support with a colourant in Central America

3000 BCE rolling stamps with bas-relief designs for embossing clay from Mesopotamia

2100-1750 BCE small flat stamps with bas-relief designs and script for embossing clay from the Indus Valley

1750-200 BCE square flat stamps with bas-relief designs and script for embossing clay from China

1500 BCE–500 CE flat wooden stamps with high-relief designs or script for embossing clay or dough from Egypt

1000 BCE–1500 CE flat stamps with high-relief designs for decorating a support with a colourant from Northern South America, Oceania and sub-Saharan Africa

775–600 BCE pieces of *electrum* stamped with high-relief designs including lettering

500 BCE stamps with bas-relief designs and script for embossing clay in China

400 BCE stamping cloth with a colourant in Pakistan and North-West India

200 BCE–1450 flat wooden stamps with high-relief designs or script for embossing clay or dough and flat bronze or iron stamps possibly for branding skin or wood from the Roman and Byzantine Empire

200 BCE stamping cloth with black, red, grey, gold or silver ink in China

100–500 stoppers on Roman amphorae embossed with traders' marks, sometimes colour stamped

117–138 CE	mould-cast lead ingot with high-relief lettering from England
224–651	stamping fabric in colours and gold in the Sasanian Empire
400	red seals stamped on paper in China
400–600	stamping cloth with a resist before dying and stamping cloth with an ink in Egypt
550–650	figurative designs with Sanskrit text stamped in black on paper in China
650	oil paint used for the decoration of walls and the two giant statues in the Bamiyan Valley, Afghanistan
650–750	Buddhist texts in Sanskrit and Chinese script printed from woodcuts inked in black on paper single leafs and bookscrolls in China
673–685	Chinese monk Yijing observes stamping Buddha's image on silk or paper in India
796–816	Compilation of the Lucca Manuscript that contains two recipes for the production of oil varnish from linseed oil and resin
768–814	stamped wax seals and silver coins with the portrait of Emperor Charlemagne and surrounding lettering in high-relief in Europe
868	dated Chinese <i>Diamond Sūtra</i> bookscroll printed in black from woodcuts containing one sheet with an image and six further sheets with text
900	resist-stamped and dyed cloth from India, retrieved in Egypt
900–1400	stamping cloth in black and gold in Persia
900–1450	woodcuts with texts and decorations stamped with black, sometimes red or green water-based inks on Arabic paper, from Syria and Egypt

950	the Egyptian physician Muḥammad bin Aḥmad bin Saʿīd al-Tamīmī describes stamping cloth with an adhesive and next applying gold leaf, and stamping cloth with perfumed paste
1000	rooftiles with high-relief lettering in Hildesheim, Northern Germany
1041–1048	printing text with ceramic type by Bi Sheng in China
1119	ceramic plate with bas-relief text and date with all letters embossed with single stamps in Regensburg, Southern Germany
1200	gilt-silver altarpiece with lettering embossed with individual punches in high-relief in Aquileia, Italy
1200/25	printing text with bronze type with black water-based ink in Korea
1200–1500	red tiles printed with a wooden stamp dipped in liquid white clay in England
1200–1500	red tiles embossed with decoration, imagery and letters by means of wooden stamps with high reliefs, the embossments filled with white slip in England
1229	manuscript of <i>De Materia Medica</i> by Dioskorides illustrated with inked impressions of medicinal plants, so-called 'nature prints'
1240–1300	written diplomatic letters with stamped red seals were sent from the Il-khanate in Persia to King Louis IX of France and the Pope Innocent IV in Rome
1295–1298	hundred copies of the gazetteer of Jingde County, Xuancheng, Anhui, China are printed using movable wooden type on order of Wang Zhen; experiments with tin type fail
1301–1316	the Persian scholar Rashid al-Din Hamadani describes woodblock printmaking
1350/75	the <i>Sion textile</i> is stamped with white-line woodcuts with black and red oil-based inks from northern Italy
1350–1450	individual tiles stamped with high-relief letters in Germany and the Netherlands

1370/1400	the <i>Bois Protat</i> has a <i>Crucifixon</i> cut on one side, the other side has a <i>Annunciation</i> cut c.1460, the block is from South-West Germany or Eastern France
1377	Jikji (Baegun hwasang chorok buljo jikji simche yojeol) the oldest surviving book printed from bronze type with water-based black ink on paper at Heungdeok temple in Cheongju, Korea
1396–1402	Cennino Cennini compiles his <i>Il libro dell'arte</i> , including chapters on stamping cloth
1400–1500	some hundred recipes for oil-based colour inks for stamping fabric are found in art technological treatises compiled in England, Germany, Holland, Italy and Sweden
1410/30	black-line woodcuts stamped with oil-based (?) inks with further colour-stamped decoration on cloth in Central Europe
1420	woodcuts printed with black water-based inks on paper in Central Europe
1430	German bookbinder Konrad Forster embossed leather bookbindings with individual letter stamps
1430/40	playing cards printed from engraved copperplates in South-West Germany and printed from woodcuts in Italy
1444—1446	Procopius Waldvogel teaches the use of his device for semi-mechanically creating lettering by means of tin or iron letter forms in Avignon, France
1450	manuscripts with woodcuts stamped within the text - booklets with series of woodcuts or engravings with hand-written texts - blockbooks with texts and images printed from woodblocks with water-based black inks in Germany and the Netherlands
1450–1452	metal type letterpress on a sheet of paper printed on both sides with black ink with fragments of the text of the <i>Book of Sibyls</i> in Mainz (?), Germany - development of the wooden bookprinting press in the Mainz area

1452–1455 1453	tin/lead type letterpress inked in black and red in the <i>Gutenberg Bible</i> in Mainz, Germany Paulus Paulerinus of Prague (Czech Republic) describes in his Liber viginti arcium that amongst the tools of the goldsmith are forms and a complete alphabet of punches
1454	metalcut with the date '1454' cut in the plate
1457–1459	metal type letterpress inked in black, blue and red in four books by Fust & Schöffer in Mainz, Germany
1457	Johann Fust and Peter Schöffer print a Mainz Psalter with Lombard initials with oilbased red and in blue ink, with bi-colour (blue/red) printed decorated initials; one capital D on fol. 93r in the copy of the Mainz Psalter in the John Rylands Library in Manchester is inked à la poupée in blue (left) and red (right) with red decoration; the same volume has an initial D inked in red placed within red decoration on fol. 81v; more red/red decorated initials are known from other copies
1457–1470	fragments of six editions of the <i>Ars Minor</i> by Aelius Donatus, a schoolbook for learning Latin grammar, with one or more initials inked in blue are printed with the same type as the B42. They are therefore thought to have been produced in the period 1457–1470 by Fust and Schöffer, or Schöffer only; a fragment of a seventh <i>Ars Minor</i> from this period has a red initial with blue decoration
1458–1462	letterpress books with metalcut or woodcut illustrations, inked in black in Germany
1460	Catholicon, Mainz: [Johann Gutenberg?], 1460; the first two lines of the first column on fol. [1]r are printed with red ink in some copies
1460–1462	the first two books in letterpress illustrated with metalcut images are produced; the metalcuts are a series of the <i>Passion of Christ</i> and the <i>Seven Delights of Mary</i>
1460–1465	development of the wooden rolling press for intaglio printing engraved copper plates in the Upper-Rhine area
1461	Ulrich Boner, <i>Der Edelstein</i> , Bamberg: Albrecht Pfister, 14 February 1461; the first letterpress book illustrated with woodcuts; oil-based ink is used for inking the letters and water-based ink for the woodcuts; the letters are printed first, the woodcuts are printed secondly

1462

Johann Fust and Peter Schöffer produce a *Latin Bible* with rubrication printed in red throughout, and part of the quires with Lombard initials printed in blue or red; a number of poorly printed blue initials is over-painted in blue; blind embossed, uninked initials are usually over-painted in blue, sometimes in red; the colophon at the end of volume 2 is printed in red and has the Fust and Schöffer printer's device with the branch with two shields with the Greek letters X and Λ printed in red

1465/67

engraving by Master E.S. of *Mary and Child in a Garden* inked in white and printed on black-coated white paper

1470

intaglio printing engraved copper plates with a rolling press in Italy (Florence and Mantua)

- engravings printed monochromatic in blue, brown or green in Italy; monochromatic intaglio prints appear since then continuously
- Christ in the Winepress, a German pasteprint printed in purple-red (Schreiber 2813)
 black/red letterpress and printer's devices inked in red become standard in German
 Lands and Italy

1470-1475

musical annotation printed in black only; presumably notes and staffs were printed separately

1471

Adrianus Cartusiensis, *De remediis utriusque fortunae*, Köln: Arnold ter Hoernen, 1471; colophon with printer's device – lettered "a h" for Arnold ter Hoernen – beneath inked in red; this is the first time another printer than Peter Schöffer uses a printer's device

1475

Corpus iuris civilis. Codex Iustinianus, glossa ordinaria by Franciscus Accursius, ed. Andreas Rumel, Nürnberg: Johann Sensenschmidt, Andreas Frisner, 1475; the only incunabel with red printed underlines

1476

Johannes Regiomontanus, *Calendarium*, Venice: Bernardus pictor de Augusta, Petrus Loslein de Langencen, Erhardus Ratdolt de Augusta, 1476; fol. 1r has woodcut ornamentation inked in black, a capital A inked in red, letterering in black, with the names of the producers inked in red; the first book produced by Erhard Ratdolt's printshop

– Missale Romanum, Rome: Ulrich Han, 12 October 1476 (Incipit ordo missalis secundum consuetudinem curie Romane, Roma: Udalricus gallus alias Han Alamannus ex Ingelstat, 1476 die

vero xii Octobris); contains musical notation with red staffs of five continuous lines printed from strips of metal over black notes; this manner became standard since until gradually replaced by broken staff lines printed from type, see under 1508

- Buch der Astronomie, Cologne: Nicolaus Götz, [c.1476]; with a lunar quadrant printed from an engraved copperplate inked in red in some copies, in black in others; with a lunar volvelle made of a base plate and two dials, the base plate and dials printed from engraved copperplates inked in black or red in various colour combinations; the plates are presumably printed by rubbing and not by press

1477-1486 Erhard Ratdolt produces books with elaborate ornamental woodcut borders inked in red or black on their respective first pages

1478 ca. Aelius Donatus, Ars minor . Additional: Cato [vulgo Disticha Catonis], [Venice]: [Nicolas Jenson], [c.1478]; Jenson worked separately from Ratdolt from 1477; he used the same kind of decorated border, and also printed in red.

1480 Agenda Moguntinensis, Mainz: [Johann Numeister], 1480; with black/red metalcut initials in the text and a large metalcut plate depicting a St Martin with three black/red printed coats of arms; all printing is in register red over black and thus unlike Schöffer's blue/red initials

> Ramón Llull, Ars brevis, Barcelona: Pedro Posa, Peter Brun, 1481; contains a circular diagram made up of curved metal strips and letterpress inked in red, yellow and blue over-printed in register with explanatory text in black below

Johannes Regiomontanus, Calendarium, Venice: Erhard Ratdolt, 1482; contains diagrams of lunar eclipses printed in register from two interdependent woodblocks inked in black and red

- Euclides, Elementa, Venice: Erhard Ratdolt, 1482; with additional dedication in seven copies in letterpress with goldleaf pressed to sticky binding medium
- Philippus de Rotingo (ed.), Missale Romanum, 2nd ed., Venice: Octavianus Scotus, 28 November 1482; contains musical annotation with staffs inked in red and notes in black; the first edition of August 1482 has the musical annotation in black only

1485 Johannes de Sacrobosco, Sphaericum opusculum, Venice: Erhard Ratdolt, 1485; with series of diagrams of lunar eclipses printed in register from two interdependent woodblocks inked in black and red, or black and yellow respectively; with a larger diagram of a lunar

1481

1482

eclipse printed from a woodcut inked in black, the impression over-printed with two other woodcuts in yellow and red for the colour planes respectively

- Breviarium Augustanum, Venice: Erhard Ratdolt, 1485; with the design of a coat of arms printed from a woodcut inked in black, the impression over-printed with two other woodcuts in yellow and red for the colour planes respectively

1486

Juliana Berner, 'Boke of blasyng of armys', in *Book of Hawking, Hunting, and Heraldry*, St Albans: Schoolmaster Printer, [not before 1486]; letterpress in black with initials in red and sometimes in blue; coats of arms stamped from woodcuts, presumably covered with fabric, in two colours of various combinations

1487

Obsequiale, Augsburg: Erhard Ratdolt, 1487; the frontispiece shows the full-figure portrait of Friedrich II von Zollern, bishop of Augsburg, printed from a black keyblock overprinted with three other woodcuts in yellow, green and red for the colour planes; Ratdolt produced a few dozen of similar frontispieces with the black keyblock over-printed with two to four colour blocks

1488

Johannes de Thurocz, *Chronica Hungarorum*, [1st ed.], Brünn: Konrad Stahel und Matthias Preinlein, 20 March 1488

– Johannes de Thurocz, *Chronica Hungarorum*, 2nd ed., Augsburg: Erhard Ratdolt, 3 June 1488; two copies with the dedication to King Matthias Hunyadi Corvinus, King of Hungary, printed in gold in the same system as the 1482 Euclides

1489

Marsilio Ficino (1433–1499), *De vita libri tres; Apologia; Quod necessaria sit ad vitam securitas*, [S.l.]: Antonio di Bartolomeo Miscomini, 1489; The first four lines on fol. a2r° are in a gold-bronze ink; in the fifth line the syllable 'nus', inked in gold, is slightly out of register compared to the rest of the line which is in black; this means the text was printed in two pulls, one after the other

1490

Johannes Crispus de Montibus, *Termini omnium actionum cum arbore*, Venice: Johann Hamann, 1490; with a classification of juridical terms represented as a tree, printed from a woodcut inked in red and with text in black within the 'fruit' hanging from the tree

- Psalterium Benedictinum cum canticis et hymnis, Mainz: Peter Schöffer, 1490; Schöffer's last
 publication with blue/red printed initials
- Livre d'Heurs, Paris: Jehan de Prie, 1490; with metalcuts printed in colours throughout the volume

1491 Octoechos, Kraków: Schweipolt Fiol, 1491; church Slavonic: Осмигласникь (Osmoglasnik); the first printed Octoechos, with red printed decoration, lettering, and initials 1492 Breviarium ordinis praedicatorum sancti Dominici, Basel: [Jacob Wolff von Pforzheim für Jacob von Kilchen], 1492; red printed decorations similar to the decorations of Schöffers initials, but here only printed in red filled the space within filled with hand-painted blue initials - Donatus Bossius, Chronica Bossiana, Milano: Antonio Zarotto, 1492; genealogical tree with letterpress within woodcut rectangles inked in red on fol. [1]v; all other text is in black only 1493 Zacharias Lilius, Orbis breviarium, Florenz: Antonio Miscomini, 1493; the first cartographic colour printing with two schematic world maps and a zone map printed from woodcuts inked in red with black lettering 1500 'Hypomnema', in: Ammonius Hermiae, Commentarius in quinque voces Porphyrii, Venice: Zacharias Kallierges for Nicolaos Blastos, 1500; fol. 1r with a decorative upper border, text within upper border and a decorated initial M printed with an oil-varnish upon which leafgold is applied, similar to Erhard Ratdolt's gold printing in 1482 and 1488 1503-1505 Leonardo da Vinci describes inking a sage leaf with white paint and pressing it onto black coated paper, which is a form of nature printing 1505 Konrad Peutinger, Romanae vetustatis fragmenta, Augsburg: Erhard Ratdolt, 1505; with text printed in gold and silver, copies now lost; the trade edition has the transcriptions of the Roman texts printed in black and the locations above the texts in red; some copies have texts in black, gold and red 1507 Lucas Cranach prints a keyblock with a St George inked in black and with highlights printed from a second block inked in gold on blue coated paper, possibly together with an equestrian image of Emperor Maximilian I in the same hues or in black and silver; a further impression of the St George is in black and white on blue paper Hans Burgkmair prints a keyblock with a St George inked in black and with highlight 1508 printed from a second block inked in silver on white paper, together with an equestrian

image of Emperor Maximilian I in black and gold on white paper; Burgkmair creates a

	second version of both prints in which he replaces the highlight blocks with tone blocks with the highlights cut from the blocks inked in yellow ochre and printed on white paper
1510	Hans Burgkmair creates <i>Lovers Surprised by Death</i> by over-printing three interdependent tone blocks in numerous colour combinations
1516	Ugo da Carpi is granted a Venetian privilege for his manner of printing <i>chiaro et scuro</i> with interdependent tone blocks on 24 July 1516
1516–1540	Agostino Veneziano, <i>Madonna and Child Adored by Saints of the Dominican Order</i> , at least one copy of the engraved copperplate is inked <i>à la poupée</i> in blue and red
1519–1521	Prints with keyblocks over-printed with five or six colour blocks appear in Germany and Spain
1530 ca.	Parmigianino, Sts Peter and John Healing the Sick at the Gates of the Temple, c. 1530, various combinations of one or two woodcut tone blocks inked in grey or greenish browns overprinted with an etching inked in black
1543–1548	Artists of the School of Fontainebleau print etching plates in monochromatic purplish red or red-brown
1550	Giorgio Vasari, LE VITE DE PIV ECCELLENTI ARCHITETTI, PITTORI, E SCVLTORI ITALIANI, DA CIMABUE INSINO A' TEMPI NOSTRI, 1st edn, Florence: Lorenzo Torrentino, 1550, pt. 1, pp. 109–10; first description of the chiaroscuro woodcut process — Italian style chiaroscuro woodcuts and chiaroscuro prints over-printed with etchings inked in black are produced north of the Alps
1557–1572	Erasmus Loy creates a series of printed <i>intarsia</i> leaves, apparently known as <i>Fladerpapier</i> , to be used as examples for actual <i>intarsia</i> work or stuck to furniture as <i>faux intarsia</i>
1572	Konrad Saldörffer creates a jigsaw etching plate of which the middle part is inked in red and the surrounding plate in black, the whole printed in one run through the press; the print is used as title plate for a Nicolas de Nicolay, <i>Von der Schiffart und Rayss in die Türckey unnd gegen Orient</i> , Nuremeberg: Dietrich Gerlatz, 1572; it is thereby the first intaglio colour printed book illustration

1593, 1595	Wendel Dieterlin publishes the first two parts of his <i>Archictectura</i> (Strasbourg: Bernhard Jobin, 1593 and 1595); title plates of this series of etchings are printed from jigsaw-plates; with some copies the inserted parts are inked in red and <i>à la poupée</i> in black and red, with the surrounding plate inked in black
1615–1630	Hercules Segers inks a number of his plates monochromatically in blue or brown; some plates he inks in white or pale yellow to be printed on black or brown coated paper; he creates two colour prints from two plates printed in register
1632–1633	François Perrier creates <i>chiaroscuro</i> etchings from two plates inked in black and white respectively and printed in register on grey-brown paper; see under 1645
1637	Abraham Bosse and Charles Delafont receive a privilege for over-printing two colour-inked etching plates in register dated 6 January 1637
1642	Ludwig von Siegen develops the mezzotint technique
1645	Abraham Bosse publishes a manual on etching, in which he also describes Perrier's manner of colour printing, his colour printing privilege of 1637, and inking plates monochromatic in a non-black colour
1649	Giovanni Antonio Remondini starts the production of block-printed decorated papers in Bassano
1660	Giovanni Benedetto Castiglione creates monochromatic (brown) monotypes
1670 <i>ca</i> .	Jan van de Velde IV creates a <i>Portrait of an Old Man</i> from two plates printed in register; the first plate is etched in dust-grain aquatint scraped further like a mezzotint and inked in black; the second plate is a line etching inked in red
1683	Joseph Moxon publishes his <i>Mechanick Exercises: Or, The Doctrine of Handy-works</i> ; pp. 328–30 have the first description of printing text in black and red
1685	in the printshop supported by Dutch militry engineer and inventor Johannes Teyler intaglio plates are inked <i>à la poupée</i> in up to ten colours

1688	20 February 1688; Teyler receives a privilege for publishing prints in his colour printing process Production of bronze varnished papers and brocade papers starts in Augsburg
1695	Amsterdam print publishers Gerard Valck and Petrus Schenck receive a privilege for publishing prints in Teyler's colour printing process on 24 September 1695
1710 ca.	Jacob Christoff Le Blon develops his trichromatic process, over-printing three mezzotint plates inked in blue, yellow and red, in this order
1719	Le Blon receives an English royal privilege for his trichromatic process on 5 February 1719; he also introduces a fourth black inked plate and a fifth white inked plate
1737	Le Blon receives a French royal privilege for his trichromatic process on 12 November 1737
1744–1764	Woodcut print printed in black, pink and other colours (benizuri-e) in Japan
1756	Publication of L'art d'imprimer les tableaux, Le Blon's instructions for trichromatic printing
1759	Giles Demarteau inks crayon engravings prepared with a roulette in red-brown; later on he prints crayon engravings from two plates inked in black and red-brown respectively
1764	Francesco Bartolozzi introduces inking stipple etched plates in red-brown in England; later on he also has his plates inked <i>à la poupée</i> in colours
1765	Start of multiple-colour woodcut printing (nishiki-e later ukiyo-e) in Japan
1769	Louis-Marin Bonnet inks a <i>Tête de Flore</i> from eight crayon engravings inked in eleven colours, thus with some plates inked <i>à la poupée</i> in two colours
1772	Jean-François Janinet combines crayon engraving with fine toothed roulettes with Le Blon trichromatic process
1787	Samuel Hooper patents the addition of fillers to paper pulp
1795	William Blake creates polychromatic monotypes

1796–1798	German Aloys Senefelder develops lithography
1800–1840	Change from wooden printing presses to full metal printing presses
1801	20 June; Aloys Senefelder is granted an English patent on his invention of lithography
1810	start of the development of full-metal printing presses for any form of printing, followed by the gradual disappearance of wooden printing presses
1818/1819	Aloys Senefelder publishes his manual on lithography <i>Lehrbuch</i> , with translations in French and English
1822	William Savage publishes his <i>Practical Hints on Decorative Printing</i> , with all colour prints printed from multiple woodblocks in up to fourteen colours
1827	John George Christ patents the making of enamelled paper
Decade of Change	?
1834	26 February; death of Aloys Senefelder
1834/35	Specimens of rainbow printing published in: Jean Midolle, Écritures anciennes d'apres des manuscrits et les meilleurs ouvrages, Strasbourg: Simon fils, 1834–1835
1835	23 October; George Baxter is granted a 14-year patent for his colour printing process combining an aquatint or mezzotint key plate (rarely a lithograph) in black over-printed with multiple wood engravings inked in colour
1837	Moritz Hermann von Jacobi invents electroplating, later developed to creating electrotypes and steelfacing – 15 January; the firm of Godefroy Engelmann Father and Son applies for a French patent for lithographic printing in four colours called <i>Lithocolore</i> – 31 July; the patent is granted as no. 8848 to Godefroy Engelmann Father and Son – 22 December; Godefroy Engelmann Father and Son apply for an alteration of the name of their process to <i>Chromolithographie</i> , next to other details

- 1838
- 27 March; the requested name alteration is granted to Godefroy Engelmann Father and Son and the process is since then known as 'Chromolithography'
- 29 March; death of Carlo Lasinio, the last to use Le Blon's trichromatic mezzotint technique
- 1839 25 April; death of Godefroy Engelmann Sr
 - 19 August 1839; the French government has acquired Louis Jacques Mande Daguerre's patent for the production of Daguerreotypes, the first successful photographic process, and presents it publicly
- 1840 1 May; the United Kingdom of Great Britain and Ireland introduces The Penny Black, the world's first, adhesive postage stamp
 - development of the mechanisation of book printing presses and of lithographic presses;
 attempts at mechanising rolling presses for intaglio printing are not successful until
 c.1900