

ECOLOGIES OF BLUE PAPER

DÜRER AND BEYOND

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ABSTRACT

This article examines blue paper as an ecological solution in drawing practice by investigating the questions of when and under which circumstances German artists in the early sixteenth century decided to use blue paper. Blue paper had several aesthetic, symbolic, and economic functions, often both referencing a geographic relationship to Italy and its tradition of drawing on blue paper, and also engaging in a world of play and imitation in workshop practices. For a better understanding of the early modern paper ecologies within which artists worked, it is necessary to regard paper production within a broader socio-cultural range, thus not only as an exchange between paper makers but also with consideration of other crafts as well as the impact of new technologies. From there we can reconsider our relationship to nature.

KEYWORDS

Ecologies; Blue paper; Papermaking; Drawing practice; Italy; Albrecht Dürer; Hans Burgkmair; *Clairobscur*-woodcut; Jörg Breu; Socio-cultural injustices.

The determination of an ecological consciousness, which suggests that humans act with nature and not against it, is as enigmatic as it is obvious for the early modern period. Environmentally responsible processes – that were more evident in the pre-industrial period though not mandatory – are only one indicator of a much more complex concept of ecologies in the sixteenth century.¹ Starting from a pre-industrial economy consisting of manual labor and mechanics as well as cooperation and networks, a general awareness of just such ecologically conscious processes, which were not only dependent on each other, but also reliant on the resources of nature, can be assumed. In the following, I relate these aspects to paper making in the fifteenth and early sixteenth centuries and in particular explore the question to what extent blue drawing paper, which has been used increasingly often as opposed to colored-ground paper, can be considered an environmentally friendly material in order to open the discussion for a manifold understanding of ecologies during that time period.²

Blue paper can first and foremost be considered an environmentally friendly material because, in the manufacturing process during the early modern period and thereafter, the blue rags were neither washed to an utmost extent nor bleached,³ although dyes such as *indigo* coming from Asia or the northern European *woad* could be added.⁴ In addition, the fibers were not as carefully selected as they were in the case of higher quality paper, and the gelatin sizing, which made paper resistant enough for writing with a

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The arguments I develop in this article are mainly inspired by James Gibson's groundbreaking concept of ecologies, see James J. Gibson, *The Ecological Approach to Visual Perception*, New York 1979. See also its reviews, such as: Jeffrey B. Wagman and Julia J. C. Blau (eds.), *Perception as Information Detection. Reflections on Gibson's Ecological Approach to Visual Perception*, New York 2020. Unless otherwise attributed, translations are by the author. "Dürer and Beyond" was also the main title of an exhibition at the Metropolitan Museum of Art in 2012: *Dürer and Beyond. Central European Drawings in the Metropolitan Museum of Art. 1400–1700* (exh. cat. New York, The Metropolitan Museum of Art), ed. by Stijn Alsteens, Freyda Spira, and Maryan W. Ainsworth, New Haven, CT 2012.

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Peter Bower, Blues and Browns and Drabs. The Evolution of Colored Papers, in: Harriet K. Stratis and Britt Salvesen (eds.), *The Broad Spectrum. Studies in the Materials, Techniques, and Conservation of Color on Paper*, London 2002, 42–48, here 47: "Coloured papers had evolved out of the primarily utilitarian and economic use of available raw materials for simple wrapping papers." Irene Brückle, The Historical Manufacture of Blue-Coloured Paper, in: *The Paper Conservator* 17, 1993, 20–31, 21: "Being of lesser importance than white paper, blue paper was on rare occasions manufactured by utilizing worn moulds rejected for white paper production. [...] possibly older watermarks"; Henk Voorn, *De papiermolens in de provincie Noord-Holland*, 3 vols., Haarlem 1960, here vol. 1, 94. James P. Casey notes for the recycled water systems of twentieth-century paper mills the common method of starting papermaking for white papers and switching to colored papers as the water became more discolored: James P. Casey, *Pulp and Paper. Chemistry and Chemical Technology*, 4 vols., New York 1980, here vol. 2, 1220–1221.

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Sandra Schultz, *Papierherstellung im deutschen Südwesten. Ein neues Gewerbe im späten Mittelalter*, Berlin 2018, here 45, 57.

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Peter F. Tschudin, *Grundzüge der Papiergeschichte*, Stuttgart 2002, 171; Brückle, *The Historical Manufacture*, 20, 24.

quill pen, appears to vary.⁵ Italian draftspeople pioneered the use of blue paper for the desired light-and-shadow-modeling that ideally requires a colored ground.⁶ However, in order to stress both how paper is involved in a process of remaking and how paper functions as a binding agent between people and their environment – both of which are constitutive for an ecological approach – the questions remain when and under which circumstances artists north of the Alps decided to use blue paper. As such, blue paper is a precondition not only of progress through the recycling of materials but also for shaping a world built on the traditional idea of memory (*memoria*, palimpsest). Remembering is a crucial reason why an artist would draw in first place – to build up a collection of pictures to serve in an artist’s workshop as templates – and it is why people generally started to draw portraits, to recall the sitter (see Pliny the Elder’s *Dibutade*, *Natural History* 35, 151–152). At the same time, these closely interrelated factors claim to incorporate the relationship between body and mind as well as between hand and intellect, in order to become aware of the complex and indissolubly intertwined processes between creativity and skill. This is already evident in early art theory in Italy (e.g., Cennino Cennini circa 1400) and is taken up and continued by subsequent art-theoretical consideration north of the Alps (e.g., Albrecht Dürer).

However, in what follows, one has to bear in mind that “ecological configurations have no definite boundaries and no universal principles”⁷ and that there are at least three ecologies – the social, the psychological, and environmental conditions – that have characterized classical naturalism since Johann Joachim Winckelmann’s *History of the Art of Antiquity* (1764).⁸ Transferring this approach to the art of the sixteenth century, I address in this paper the social impact of environmental conditions and regard our environment as consisting of nature as well as of society. Nevertheless, for European culture it should not be ignored how decisive and formative the tendency is, which Pliny explores in his *Natural History* as “the

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Brückle, *The Historical Manufacture*, 76: “The use of wrapping paper, and even printing paper, occasionally required artists to apply a surface size consisting of a gelatin/alum solution to prevent inks and watercolors from wicking into the otherwise unsized paper.” See also Berthold Cornely, *Eine papiergeschichtliche Untersuchung über das Schönen und Färben des Papiers in der Masse*, in: *Papiergeschichte* 6/4, 1956, 49–60, here 50: Dip dyeing and starch sizing in the same bath, and further 53; and Tschudin, *Grundzüge der Papiergeschichte*, 97.

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Iris Brahms, *Schnelligkeit als visuelle und taktile Erfahrung. Zum chiaroscuro in der venezianischen Zeichenpraxis*, in: Magdalena Bushart and Henrike Haug (eds.), *Interdependenzen. Künste und künstlerische Techniken. 1430–1550*, Cologne/Weimar/Berlin 2015, 205–229 with further literature.

7

Andrew Patrizio, *The Ecological Eye. Assembling an Ecocritical Art History*, Manchester 2019, 55.

8

Verity Platt, *Ecology, Ethics, and Aesthetics in Pliny the Elder’s Natural History*, in: Christopher P. Heuer and Rebecca Zorach (eds.), *Ecologies, Agents, Terrains*, Williamstown, MA 2018, 219–242, here 220.

nuances of man's relationship to a *natura* that serves as the passive object of inquiry and source of raw materials, on the one hand, and supremely intelligent agent and artist (*artifex*) in its own right, on the other".⁹ That this tendency became a worldwide attitude that eventually resulted in climate change is an insight hard to bear and obviously hard to change within the economic system of globalization.

I. Recycling in a Twofold Sense

We can consider blue paper as an environmentally friendly material because it is a product of recycling in two senses: European paper of the early modern period was usually a secondary product, made primarily from rags. In addition, blue paper was even intended for wrapping goods and often became waste as packaging material. Therefore, the artists took what was essentially a huge step: they decided to use a cheap material, which was regarded as inferior, as a base for their drawings. Noticing this is crucial, because assuming that artists chose this paper because of its lower costs is obviously an oversimplification with regard to such successful artists as the Bellinis, Andrea Mantegna, Titian, and Jacopo Tintoretto.¹⁰ Rather, the question is what impact the choice of blue paper had on the drawing's value, its meaning, and status, especially given that blue paper tends to fade quickly, even within an artist's lifetime, meaning that the discoloring process might have been common knowledge in artists' workshops.¹¹ It would lead nowhere to assume that artists held their drawings in low esteem. Rather, these parameters show the intriguing role that the factor of time plays for drawing. Due to the material's easy handling, drawings can be executed spontaneously, even as a note to oneself on a piece of paper, which has been devoted to another project entirely. They can be valued at a particular moment of the creative process or during a short span of their reception. Additionally, they can serve as part of a workshop's model stock and provide durability. The latter can also be true for

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Ibid., 221.

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Brahms, *Schnelligkeit als visuelle und taktile Erfahrung*; Iris Brahms, *La strada vera. Tintoretto's Drawings on Carte Azzurre and Art Theory*, in: Alexa McCarthy, Laura Moretti, and Paolo Sachet (eds.), *Venice in Blue* ("Testi e fonti per la storia della grafica"), Florence 2024 (forthcoming).

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Nevertheless, the blue dye indigo is a light-, water- and temperature-stable molecule, see Norbert Welsch and Claus Christian Liebmann, *Farben. Natur, Technik, Kunst*, Berlin 2003, 178. In addition, measures were taken in the scooping process to preserve the color: Brückle, *The Historical Manufacture*, 23–29; Tschudin, *Grundzüge der Papiergeschichte*, 220–221; Cornely, *Eine papiergeschichtliche Untersuchung*, 51; Bower, *Blues and Browns and Drabs*, 43–45, Fig. 1.35: "Fabrics dyed with indigo retain their color better than the dyed paper pulp." See also Julius Erfurt, *Färben des Papierstoffs*, Berlin 1912, esp. 10–14.

drawings on blue paper;¹² many studies on this paper have also been preserved, for example from Tintoretto's workshop,¹³ indicating there is no evidence to consider blue paper as the preferred material for use as waste or disposable paper. Moreover, this suggests the paper may have been valued as a rather more environmentally friendly product, although this might not have been the first and foremost reason to employ it.

Apart from this, we must ask the question in what way artists reacted to the expected discoloring of the paper, to what extent they consciously included the fading in their way of drawing or whether they just accepted it as it is. We probably have to assume the latter for the sixteenth century, since indications of the deliberate inclusion of fading are only evident from the nineteenth century onwards.¹⁴ The crucial fact we must keep in mind is that the step to choose blue paper for drawing could only be taken at a time when the technology for manufacturing paper was steadily refining the quality of paper, which had an effect on the quality of its by-product: blue paper.¹⁵ The increasing relevance of this cost-efficient material, which in itself could serve as a colored ground, can be linked to artists' rising demands as well as increasing expectations on artists, who had to work more efficiently as a result.¹⁶ This does not mean that inferior materials were chosen on purpose, but it seems more likely that materials were used not only because of their (assumed) quality. Their aesthetic or productive potential could be more important, as is the case with blank lime-wood sculptures or papier mâché sculptures (*carta pesta*). In addition to the twofold recycling that takes place with blue paper, an even more decisive advantage of the blue paper may have been that it rendered the time-consuming and material-intensive preparation of the paper sheets for the desired light-shadow modeling obsolete; consequently, there is no drying process, which required spreading the sheets out, and even the need for careful storage in

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Cima da Conegliano, *Salvator Mundi*, ca. 1490–1500, London, The British Museum, inv. no. 1895,0915.803; Brahms, *La strada vera*, 212–213, with further examples and literature.

13

See Brahms, *La strada vera*, with further literature.

14

With many thanks to Harriett Stratis (Chicago) for a fruitful discussion on Odilon Redon. Brückle, *The Historical Manufacture*, 25, and further 28: "Rapid colour changes of newly manufactured blue paper sheets as a result of the presence of acids were already noted by 19th century papermakers."

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Gerhard Piccard, *Die Kronen-Wasserzeichen*, Stuttgart 1961, here 22: "[...] poor quality from the 16th century due to increasing production and steady reduction of suitable raw materials". See also Brückle, *The Historical Manufacture*, 21: "Hollander simplified the dyeing, in the 18th century a variety of blue papers"; and Richard Hills, *A Technical Revolution in Papermaking, 1250–1350*, in: John Slavin, Linda Sutherland, John O'Neill, Margaret Haupt, and Janet Cowan (eds.), *Looking at Paper. Evidence & Interpretation*, Ottawa 2001, 105–111, here 105: "We can identify improvements in pulping techniques, changes to paper moulds and the introduction of new drying techniques."

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See Brahms, *La strada vera*.

the workshops disappeared. Altogether, these preconditions can be considered as environmentally friendly and economically responsible.

When and where blue paper was first produced is not certain. However, inherently (blue) colored papers were a common support in much of Asia,¹⁷ a crucial component in Islamic manuscripts, and in Arabia used especially for official letters. Furthermore, it was a useful material for packaging medicines in Persia.¹⁸ Blue paper was probably a by-product from the very beginning of hand papermaking in Europe,¹⁹ which began in Spain and Italy between the eleventh and twelfth centuries.²⁰ The European import of paper technology from Arabian cultures converged with the “late medieval revolution in techniques and crafts”²¹ and had initially unexpected success, advancing to mass production because of various reasons. The first mention of *carta azzurra* that we know of occurs in the Bolognese statute of 1389,²² which established state rules for the production of different qualities of paper. North of the Alps, there was no such statute and only the watermarks provide an indication

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Tsien Tsuen-Hsuei, Paper and Printing, in: Joseph Needham (ed.), *Science and Civilisation in China*, vol. 5: *Chemistry and Chemical Technology, Part I*, Cambridge 1985, 52, 58–59, 74–77 et passim; Jonathan M. Bloom, *Paper before Print. The History and Impact of Paper in the Islamic World*, New Haven, CT/London 2001, 71.

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Wisso Weiß, *Zeittafel zur Papiergeschichte*, Leipzig 1983, 47. Brückle, *The Historical Manufacture*, 20; Robert Ignatius Burns, S.J., *Paper Comes to the West, 800–1400*, in: Uta Lindgren (ed.), *Europäische Technik im Mittelalter, 800 bis 1400. Tradition und Innovation*, Berlin 1996, 413: the author mentions the production of fine paper in Damascus and Jätiva as well as of ordinary paper that “allowed even poor folk to own books, while containers and market-wrappings were common”. This indicates that the ordinary paper was not as white as it would have been if the fibers had been well washed. See also Tschudin, *Grundzüge der Papiergeschichte*, 76–92.

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Cornely, *Eine papiergeschichtliche Untersuchung*, 50; Brückle, *The Historical Manufacture*, 20 mentions blue-colored paper in Asia at least since the fourteenth century; 21: “Although some white paper mills also manufactured blue paper, the bulk of blue paper production was carried out in specialized blue paper mills. Documentary evidence for the existence of specialized blue paper mills survives from the early 17th century, but such mills existed in all probability long before that time. [...] In the course of the 17th century, Dutch papermakers excelled in the manufacture and export of blue paper, and even maintained their own mills for processing dyestuffs such as logwood.” See also Irene Brückle, *Blue-Colored Paper in Drawings*, in: *Drawing 15/4*, 1993, 73–77, 76: “Also, since the commercial use of blue papers was widespread, they probably were available in many locations.” And lastly, Bower, *Blues and Browns and Drabs*, 46: “Some white-paper mills also made small amounts of blue and brown papers, usually for use in wrapping their own papers, but most were made in papermills that specialized only in colored papers.”

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Tschudin, *Grundzüge der Papiergeschichte*, 98; Tsuen-Hsuei, *Paper and Printing*, 296–303; Brückle, *The Historical Manufacture*; Caroline Fowler, *The Art of Paper. From the Holy Land to the Americas*, New Haven, CT/London 2019, 9 et passim.

21

Günter Bayerl and Karl Pichol, *Papier. Produkt aus Lumpen, Holz und Wasser*, Reinbek bei Hamburg 1986, 38–44. See also Bloom, *Paper before Print*, 161–162.

22

Tschudin, *Grundzüge der Papiergeschichte*, 95 and 100.

of the regulation of dimensions and qualities.²³ However, watermarks varied greatly and were not applied systematically. They thus primarily served a local production and identity context.

For a better understanding of what follows, it is important to briefly clarify two crucial issues that are often the cause of misunderstandings.

1. Blue paper became especially fashionable in Venice before 1500, but the earliest preserved drawings on blue paper are by artists working in Bologna and Florence [Fig. 1].²⁴ During the sixteenth century it also became a commonly used paper for drawing in Rome.²⁵ North of the Alps, it was chosen by artists in most cases to reference the Italian or even Venetian style, as we will see later.
2. Albrecht Dürer follows a long tradition of *chiaroscuro*-drawing techniques on colored grounds. This is evidenced by preserved Italian drawings from around 1300,²⁶ while north of the Alps, such drawings exist from the 1380s onwards [Fig. 2].²⁷ The exchange between Italian and northern artists concerning this technique began at the latest during the fourteenth century and continued throughout the fifteenth century and beyond. By contrast, the use of blue paper (rather than the colored grounds just mentioned) by artists north of the Alps is not documented before Dürer's stay in Venice between 1505 and 1507.

II. Dürer's Assimilation as Ecological Approach

Albrecht Dürer's large studies on blue paper, which he executed during his stay in Venice between 1505 and 1507 [Fig. 3, Fig. 4 originally the same piece of paper],²⁸ are closely connected to a specific

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Gerhard Piccard, *Die Ochsenkopf-Wasserzeichen*, Stuttgart 1966, vol. 1, 24–25.

²⁴

Brahms, *Schnelligkeit als visuelle und taktile Erfahrung*, 209, with more examples and further literature.

²⁵

See the oeuvre of the Zuccari and the Carracci. Iris Brahms, *The Carracci's Reflection of Blue. Carte Azzurre in Annibale and Agostino's Drawings and Their Criticism of Vasari's Doctrine*, publication forthcoming with further literature in: *Logbuch Wissensgeschichte*, Blog of the SFB 980 *Episteme in Bewegung. Wissenstransfer von der Alten Welt bis in die Frühe Neuzeit*, Freie Universität Berlin.

²⁶

Giotto (attr.), *Saints Paulus and Julianus*, ca. 1304–1306, Paris, Louvre, inv. no. 2664, 209 × 186 mm; Taddeo Gaddi, *Presentation of Mary in the Temple*, around 1328, Paris, Louvre, inv. no. 1222, 366 × 285 mm.

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See Iris Brahms, *Zwischen Licht und Schatten. Zur Tradition der Farbgrundzeichnung bis Albrecht Dürer*, Paderborn 2016, 72, 122–124 with further literature.

²⁸

Brahms, *Zwischen Licht und Schatten*, 254–255 et passim; Fowler, *The Art of Paper*, 91–92; *Albrecht Dürer* (exh. cat. Vienna, Albertina), ed. by Christof Metzger, Vienna 2019, 270–271. See also the study of Eve's arm in *The Cleveland Museum of Art*, inv. no. 1965.470 (gift of



[Fig. 1]

Giovanni da Modena, Courtly Company on Horseback, 1410/1450, Pen and brush, heightened with lead white, on blue paper, 342 × 460 mm. Dresden, Kupferstich-Kabinett, inv. no. C 150 © Kupferstich-Kabinett, Staatliche Kunstsammlungen Dresden. Photo: Herbert Boswank.



[Fig. 2]

Netherlandish artist, Adoration of the Kings, ca. 1380 and 1400, compiled in 1410, from "Wiesbaden manuscript", colored-ground drawings and pen drawings with wash pasted together, page 285/295 × 205/220 mm. Wiesbaden, Hessisches Hauptstaatsarchiv, inv. no. 3004 B 10, fol. 24 v © Hessisches Hauptstaatsarchiv, Wiesbaden.



[Fig. 3]

Albrecht Dürer, Angel from Feast of the Rose Garlands, 1506, Brush on blue paper,
270 × 208 mm. Vienna, Albertina, inv. no. 3099 © Albertina, Vienna.



[Fig. 4]

Albrecht Dürer, Jesus from Christ among the Doctors, 1506, Brush on blue paper,
273 × 210 mm. Vienna, Albertina, inv. no. 3106 © Albertina, Vienna.

drawing method popular in Italy that uses only the brush instead of a quill pen. It has never been questioned by scholars that Dürer used Italian paper, however, the detectable watermarks are similar only to the ones found in Venice and other northern Italian towns.²⁹ Still, the assumption that Dürer drew the studies as *ricordi* to take them home to Nuremberg and present them in humanistic circles as proof of his success in the lagoon city is indeed the most likely scenario.³⁰ As such, not only do the exquisite drawings provide insight into the working process, the sumptuous modeling even manages to convey coloristic impressions that could have been enriched by Dürer's own words, which he might have chosen to explain the context of the works on paper and to describe the associated paintings. Moreover, they are proof of the artistic exchange across the Alps and substantiate an experienced awareness of the self and the foreign. In this sense, connecting means at the same time a differentiation of one's own traditions and sources, as well as one's efforts and desires. Leaving home to stay and work somewhere else means – especially in pre-industrial times – a physical movement of indescribable effort and is undoubtedly accompanied by an intensive experience of the distances that span spacious landscapes. The ground, that is, the surface of the earth we live on, acquires its irreversible importance for us from the very fact that we depend on it and enter into a physical relationship to it determined by our planet's gravity. Thus, these conditions create a local bond over time and, as soon as one moves elsewhere, engender new perspectives, in multiple dimensions: from a microcosm (to differentiate the perspective of the self and the others) to a macrocosm across a region, country, or continent.

Moving and traveling to, and working elsewhere also causes wearing and abrasion on materials such as textiles and clothing fabrics – the most important material in the current context as this is the material from which paper was made but which is also the

Alan Kennedy; Walter Strauss, *The Complete Drawings of Albrecht Dürer*, New York 1977, 1507/1) with Dürer's monogram and the date "1507".

29

Albrecht Dürer (exh. cat. Vienna, Albertina), 456–457. I am grateful to Christof Metzger, who provided me with a documentation of the watermark of the Albertina drawing inv. no. 3103. For the Nuremberg drawings see *Meister der Zeichnung, Zeichnungen und Aquarelle aus der Graphischen Sammlung des Germanischen Nationalmuseums* (exh. cat. Nuremberg, Germanisches Nationalmuseum), ed. by Gerhard Bott, Nuremberg 1992, 62–65 (Rainer Schoch). I also want to extend my gratitude to Claudia Valter and Roland Damm who agreed that the fragmented watermark on inv. no. Hz. 5481 does not belong to a Cardinal's Hat as, according to other drawings by Dürer of that period, suggested by Walter Strauss (1506/37). With regard to the Cleveland drawing, I want to thank Emily Peters and Moyna Stanton for providing transmitted light photographs of the watermark, an anchor in a circle that is close to Briquet 461, which is similar to the Albertina drawing inv. no. 3103.

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Brahms, *Zwischen Licht und Schatten*, 256; Fowler, *The Art of Paper*, 93; Albrecht Dürer (exh. cat. Vienna, Albertina), 262, 268 (Julia Zaunbauer and Christof Metzger). The Cleveland drawing, dated "1507", is an exception in that Dürer did not complete the associated painting until later that year in Nuremberg, now in the Prado, Madrid. However, Dürer had taken up the subject after his engraving of Adam and Eve (SMS 39) of 1504 during his stay in Venice, see Strauss 1506/50–1506/54. It is therefore likely that Dürer planned the painting so far in advance that he made such a large-scale study for it even before he left Venice in early 1507, see Fedja Anzelewky, *Albrecht Dürer. Das malerische Werk*, 2 vols., Berlin 1991, text vol., 215.

most personal, as it is worn next to the skin to cover the body. Since all things, tools and equipment, clothing and leather works were certainly handmade (with only some mechanical support), it is likely that their owners had, in most cases, a better understanding of their production than nowadays. This might include the fact that paper is a product of recycling the very material one wears every day. At that time, the use of rags for papermaking was unlikely to be questioned as long as they were available in sufficient quantities.³¹ But it would not be appropriate to consider this approach environmentally friendly in the sense and with the emphasis that this term is used today. Nevertheless, and not least due to poverty, some awareness of resources was likely in earlier times, leading to a high potential to protect from wasteful behavior.³² Interestingly enough, in sources such as folk songs, there is conscious acknowledgment of the discrepancy in using inferior material for a high-quality substance, which was valued and used by the higher ranks of society such as scholars, juridical and ecclesiastic representatives, as well as monarchs.³³

With this better understanding of handcraft and pre-industrial processes, as a consumer of paper one was at the same time part of developing networks that grew between paper technologies and other fields of production such as for parchment (using animal remains to produce gelatin for paper sizing)³⁴ and textiles.³⁵ Innovations in the latter field, like “the spinning wheel at Speyer around 1280 [that] ‘vastly increased’ the production of linen for underclothing and household items” or the fulling mill (*Walkmühle*) provided an international rag market and accelerated the path to the mass production of paper.³⁶ Robert Ignatius Burns, S.J., covers this development via the invention of eye glasses in Italy in the early 1280s

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On the profession of rag collector and ragseller as well as the low social position of the rag collector, see Lothar Müller, *Weißer Magie. Die Epoche des Papiers*, Munich 2012, here 76–77. That was not always the fact: people used to wear their clothes their entire life long. Documents prove that paper mills were struggling to receive the raw material: rags. See also Georg Christoph Keferstein, *Unterricht eines Papiermachers an seine Söhne, diese Kunst betreffend*, Leipzig 1766, reprint: Stolberg 1936, here 70.

32

Ann Rosalind Jones and Peter Stallybrass, *Renaissance Clothing and the Materials of Memory*, Cambridge 2000, 8, 11, 17–33 et passim on clothing as circulating goods and currency.

33

Müller, *Weißer Magie*, 76–82.

34

Erika Eisenlohr, Die Kunst, Pergament zu machen, in: Lindgren, *Europäische Technik*, 429–434; Peter F. Tschudin, Werkzeug und Handwerkstechnik in der mittelalterlichen Papierherstellung, in: Lindgren, *Europäische Technik*, 423–428, 426: “Gelatin was made from tanneries’ skin waste and sheep’s feet.”

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When making yarn, the color fastness mattered, see Margret Wensky, Frauen im Handwerk, in: Lindgren, *Europäische Technik*, 509–518, 515; Müller, *Weißer Magie*, 76–82.

36

Burns, *Paper Comes to the West*, 417; Tschudin, *Werkzeug und Handwerkstechnik*, 424. See also Lukas Clemens and Michael Matheus, *Die Walkmühle*, in: Lindgren, *Europäische Technik*, 233–234.

and the manual labor of the scribe to meet the demands of the establishment of a written culture; with this in mind, Burns balances the privilege of parchment against the ephemeral paper, which was by 1280 “six times cheaper than parchment in Bologna”.³⁷ Understanding this development requires seeing the production of longer-lasting papers due to glue, gelatin, or vegetable starch sizing in Italy as a necessary precondition for its success.³⁸

Although it was significantly cheaper than parchment, the production of paper was still a costly and time-consuming investment³⁹ and necessitated well-functioning collaboration between rag collectors, rag sorters, hand papermakers (*Schöpfgeselle*), and couchers (*Gautscher*)⁴⁰ that formed a social hierarchy up to the papermaker who was understood more as an artist than as a craftworker, which meant that papermakers did not organize in or form a separate guild,⁴¹ rather, they were associated with the guild of the pharmacists.⁴² However, they guarded secret recipes and their experiential knowledge, so that setting up a paper mill in another region required recruiting specialists from elsewhere. The entrepreneur Ulman Stromer, for example, had to enlist experts from Italy in 1389 to run his paper mill at the Pegnitz river near Nuremberg.⁴³ Furthermore, we have to consider the impact of new technologies such as wire drawing⁴⁴ – which allowed the production of finer papers and the application of a watermark – as well as the screw press, established for the first time in the wine industry, which allowed the extraction of about 50 percent residual moisture in the paper

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Burns, *Paper Comes to the West*, 417, 419.

38

Ibid., 419.

39

Tschudin, *Werkzeug und Handwerkstechnik*, 426: merchants were the investors.

40

Tschudin, *Grundzüge der Papiergeschichte*, 117–130; see also Müller, *Weißer Magie*, 45. Bayerl and Pichol, *Papier*, 47; Hans-Jürgen Wolf, *Geschichte des Papiers. Historische Grundlagen, Portraits, Technologie*, Ulm 2012, 625–660.

41

Müller, *Weißer Magie*, 76–82.

42

Andrea F. Gasparinetti, Ein altes Statut von Bologna. Über die Herstellung und den Handel von Papier, in: *Papiergeschichte* 6/3, 1956, 45–47, 46.

43

Franz Irsigler, Überregionale Verflechtungen der Papierer. Migration und Technologietransfer vom 14. bis zum 17. Jahrhundert, in: Knut Schulz and Elisabeth Müller-Luckner (eds.), *Handwerk in Europa vom Mittelalter bis zur frühen Neuzeit*, Munich 1999, 253–276, 258–261; Ulman Stromer, *Püchel von mein gesecht und von abentewr. Teilfaksimile der Handschrift Hs 6146 des Germanischen Nationalmuseums Nürnberg*, ed. by Lotte Kurras, Bonn 1990, 146–147, see also 70–75.

44

Jochem Wolters, Drahtherstellung im Mittelalter, in: Lindgren, *Europäische Technik*, 205–216.

that was made possible by the hydraulic operation.⁴⁵ Because rag stamping mills and paper mills in Europe were based on an increasingly powerful hydraulic system, they “used the forces of nature mechanically for human purposes”⁴⁶ and were dependent on a position close to a source of appropriate water like a steady stream.⁴⁷ Lynn White saw this against the background of “a conscious and widespread program designed to harness and direct the energies observable around us” into a “labour-saving power technology”. In this mindset, the cosmos was conceived of “as a vast reservoir of energies to be tapped and used according to human intentions”.⁴⁸ However, an early awareness of polluting water by soaking flax or hemp (“a long and essential stage in paper making”⁴⁹) led to, for example, Emperor Frederick II issuing a decree against it in 1231, forbidding it near towns lest “the quality of the air [...] be corrupted by it”.⁵⁰ In view of the growing public as well as private use of paper, this became a shared social responsibility that went beyond the local dimension and gained international importance.

This broader perspective on papermaking will help us to better relate to Dürer’s use of paper and his particular understanding of the drawing processes in the international context. Even though Dürer never discusses the certain use of blue paper – he in fact mentions paper very little in his theoretical writings⁵¹ and regards the Venetian paper, which the well-known humanist Willibald Pirckheimer requested in a letter to him, as not more valuable than the paper available in Nuremberg⁵² – his explanations about

45

Tschudin, *Grundzüge der Papiergeschichte*, 94 and 100; id., *Werkzeug und Handwerkstechnik*, 424–426: As a location with a tradition of textile and iron production, Fabriano has played a crucial role in the invention of the paper stamping mill and scoop mold.

46

Lynn White, *Medieval Technology and Social Change*, Oxford 1962, 79. Bloom, *Paper before Print*, 9.

47

Stromer, *Püchel*, 87, fol. 99v: Judicial decision on the watercourse of the Pegnitz with assurance of one third of the inflow to the Gleismühle.

48

White, *Medieval Technology*, 134.

49

Burns, *Paper Comes to the West*, 415.

50

James M. Powell, *The Liber Augustalis or Constitutions of Melfi Promulgated by the Emperor Frederick II for the Kingdom of Sicily in 1231*, Syracuse/New York 1971, The third book, Title XLVIII, 132; Burns, *Paper Comes to the West*, 415–416.

51

This is, indeed, different to Cennini, who explains the use of parchment and paper and its preparation with colored grounds, see Cennino Cennini, *Il libro dell'arte*, ed. by Fabio Frezzato, Vicenza 2003, cap. X and XV–XXVI.

52

August 18, 1506: “Item laßt mich wissen, was Papiers Ihr meint, das ich kaufen soll, wann ich weiß kein subtiler denn als wir doheim kauft hant” (Albrecht Dürer, *Schriftlicher Nachlaß*, vol. 1: *Autobiographische Schriften*, ed. by Hans Rupprich, Berlin 1956, 53). This does not necessarily mean, in Dürer’s view, that the Italian paper is of lesser quality than the paper at home, as scholars have argued (Brückle, *Blue-Colored Paper*, 75; Cornely, *Eine*

how to become a good artist are still meaningful to us. In the *Aesthetic Excursus*, printed in 1528, Dürer emphasizes the relevance of an ignorant person's judgment about art and stresses the importance of art's reception by common people such as a farmer:

But that is why it is not reprehensible if an incomprehensible person shares his observation with you. That is not why one should not believe it. For it is possible for a peasant to tell you the error of your work, although he cannot correct it and teach you how to improve it.⁵³

Dürer's exceptional approach is an important fact since ecology is often primarily understood as the surrounding of both the individual and all of us. As soon as an individual steps into the environment, which is inhabited by others, a life-shaping interrelationship develops. James Gibson has pursued ground-breaking research in this direction and investigated a new approach by asking the question how to define perception and how it functions.⁵⁴

In terms of perception, Dürer has an eye-opening idea that relates to the artist's practice. Here, what roles the mind and the hand play and in which relationship they stand to each other is of crucial concern. Interestingly enough, Dürer does not postulate a hierarchy between them. He even seems to give the hand – at least in the early stages of art production – a life of its own by explaining that one's mind has to grow from the time one first uses it in order to be able to tell one's hand what to do: "For the mind must begin to grow with its use, so that the hand can do what the mind wants to have. From this grows with time the certainty in the art and its use."⁵⁵ It is the close intertwining of both, of mind and body, that matters to Dürer: "For these two must be together, for one can do nothing without the other."⁵⁶ This statement demonstrates the

papiergeschichtliche Untersuchung, 60, fn. 6 even suggested that Dürer thought only blue paper was available in Italy). Rather, the quote from his letter indicates that the trade routes were vivid enough to provide the same choice of paper qualities on both sides of the Alps.

53

Albrecht Dürer, *Schriftlicher Nachlaß*, vol. 3: *Die Lehre von menschlicher Proportion*, ed. by Hans Rupprich, Berlin 1969, 267–306, here 297, § 74: "Darumb ist aber nit verwerffenn, so einem ein vnuerstendiger ein warheyt sag, das mans darumb nicht glaubenn solt. Dan es ist mueglich, es sag dir ein bawer den yrrthum deines wercks, aber er kan dich darumb nit berichten vnd lernen, wie du den selben bessern solst." And § 77: "Man sol auch merckenn, wie wol ein gemeyner man das besser for dem schlechtern erkent. Noch dann verstedt nyemant volkumlicher ein werck zu vrteyln dann ein versteddiger kuenstner, der da solchs durch sein werck offt bewissen hat." See also Christiane J. Hessler, *Ne supra crepidam sutor!* Schuster, bleib bei deinem Leisten. Das Diktum des Apelles seit Petrarca bis zum Ende des Quattrocento, in: *Fifteenth Century Studies* 33, 2008, 133–150.

54

Gibson, *The Ecological Approach*.

55

Albrecht Dürer, *Schriftlicher Nachlaß*, vol. 3: *Die Lehre von menschlicher Proportion*, ed. by Hans Rupprich, Berlin 1969, *Der ästhetische Exkurs*, 267–306, here 297, § 76: "Dann der verstand muß mit dem gebrauch anfahren zu wachsen, also das die hand kuen thon, was der will im verstand haben will. Auß solchem wechst mit der zeyt die gewykheit der kunst vnd des gebrauchs."

56

Ibid., § 76: "Dann dise zwey muessen bei ein ander sein, dann eins on das ander sol nichtz."

balance between intellect and practice in Dürer's understanding and underlines his distance to concepts that prioritize the mind, such as Giorgio Vasari's later *disegno*-theory will do most influentially. Instead, it becomes obvious that creativity can only develop on the basis of a synergetic relationship between the hand and the mind, so that, as a result, the skilled hand (*behendigkeyt*) transforms the creation of art into a fluid process and even accelerates this process, as long as the mind is full of images: "And this agility makes that you do not have to think long, because your head is full of art."⁵⁷ This "freyheyte der hand" (freedom of the hand)⁵⁸ made it possible for Dürer to draw most painterly depictions on blue paper in a large scale in order to counter the common assumption that he was simply a fantastic printmaker. His international experience made him aware of the different status that artists enjoyed on both sides of the Alps. With this revised perspective, he realized both the tradition from which he emerged and what needed to change in order to turn the wheel of time.

III. Burgkmair's Technical Interest in an Ecological Perspective

Change of scenery: Hans Burgkmair from Augsburg was very much interested in inventing a new method of printing: the *clairobscur*-woodcut. Burgkmair's *clairobscur*-woodcut depicting Pope Julius II (dated to 1511) [Fig. 5]⁵⁹ resembles a coin. Different prints of the woodcut exist, which vary in the tone of the color plate. In addition to the woodcuts, a colored-ground drawing is preserved [Fig. 6],⁶⁰ which is considered to have been made in preparation for printing. With regard to the tradition of drawing we have to remember, however, that elaborate colored-ground drawings were hardly ever direct models for works of art to be produced, such as panel or glass paintings, but rather had the status of presentation pieces.⁶¹ This explains why it seems less common to have the presentation

57

Ibid., § 79–80: "Vnnd diese behendigkeyt macht, das du dich nit lang bedencken darffst, so dir der kopff vol kunst steckt."

58

Ibid., § 82.

59

Iris Brahms, Mehr an Sein. Zur bildlichen Präsenz von Burgkmairs Zeichenkunst, in: Wolfgang Augustyn and Manuel Teget-Welz (eds.), *Hans Burgkmair. Neue Forschungen zu einem Künstler der deutschen Renaissance*, Munich 2018, 395–414, here 407.

60

Ibid., 406–409; Tilman Falk, *Hans Burgkmair. Studien zu Leben und Werk des Augsburger Malers*, Munich 1968, here 56–57; id., *Hans Burgkmair. Die Zeichnungen*, Berlin 2023, 85, who omits to mention that the blue paper used in this drawing as a support was not discovered until my publication in 2018 but assumes, without further reflection, it to be undoubtedly Venetian paper and therefore even considers the drawing was created in 1507 when Burgkmair might have stayed there. For a possible sojourn of the artist in Italy see id., Hans Burgkmair, der "vernachlässigte" Altdeutsche, in: Augustyn and Teget-Welz, *Hans Burgkmair*, 1–28, here 9 and 11–13.

61

Brahms, *Zwischen Licht und Schatten*, 131–151 et passim.



[Fig. 5]

Hans Burgkmair, Julius II, designed 1511, *Clairobcur*-woodcut, D. 245 mm. Dresden, Kupferstich-Kabinett, inv. no. A 2042 © Kupferstich-Kabinett, Staatliche Kunstsammlungen Dresden. Photo: Herbert Boswank.



[Fig. 6]

Hans Burgkmair, Julius II, 1511, Colored-ground drawing on blue paper, 225 × 248 mm.
Berlin, Kupferstichkabinett, inv. no. KdZ 692 © Public Domain Mark 1.0.

drawing in the same size and format as the print, although this is probably what was intended here. This detail evokes in this particular case an extraordinarily close interrelationship between manual work and technical reproduction.

Against this background, we approach a complex context of physical work in different media and the role that the mind plays in creating a drawing or a print. In the end it is a question of various functions and, especially in the case of prints, of different steps in the process. Whereas there might be in any medium a varied intensity of creativity incorporated to either invent a depiction or to copy it, in the print process several hands are usually involved: the inventor, the engraver, and the printer (not to mention the publisher). At this point, I do not want to clarify those tasks in detail. Rather, I want to draw attention to the fact that the mind-hand relation should never be underestimated and that a primacy of one over the other becomes obsolete as soon as its interrelationship is accepted. To comprehend the skillful task of an engraver or wood-carver, one must consider the complexity of translating the drawing on paper onto a copper plate or a woodblock, which principally involves reversing the picture. Additionally, the engraver has to be aware of the characteristics and irregularities of the material (especially the latter in the case of woodblocks because of the annual rings) to control their strength and execute lines and hatchings in the requested manner. Likewise, printing the block or plate onto paper requires the knowledge, gained by experience, to cover it with ink of the right consistency, to remove the excess ink (which in itself is a creative process, since its specific manner determines the lighter and respectively darker areas and is thus dependent on certain atmospheric effects), and to adjust the paper in the press so that it does not wrinkle or misalign.⁶² In this sense, it is only partly understandable when scholars emphasize the printing process as a purely mechanic process that does not require manual labor.⁶³ This then proves, without any doubt, the necessity of engaging the mind, as we have seen before.

While printing must be thought of, in most cases, as a collaboration, a drawing is first and foremost the work of a single person who, in all concentration, invests his reflection of the world into the creative process. By focusing on Burgkmair's drawing of Pope Julius II, a completely new argument will be presented on the basis of my empirical analysis.⁶⁴ The sheet, which is cut into a round shape, has a black background from which the dignitary stands out in profile.

⁶²

Iris Brahm, *Abklatsche wie sie im Buche stehen. Zur Phänomenologie der Nachnutzung*, in: ead. (ed.), *Marginale Zeichentechniken. Pause, Abklatsch, Cut&Paste als ästhetische Strategie in der Vormoderne*, Berlin/Boston 2022, 103–127, here 105–107.

⁶³

For a different discussion see Hana Gründler, Toni Hildebrandt, and Wolfram Pichler, *Zur Händigkeit der Zeichnung*, in: *Rheinsprung 11. Zeitschrift für Bildkritik* 3, 2012, 2–19, here 3.

⁶⁴

Brahms, *Mehr an Sein*, 408.

His features have been drawn by pen and brush in black and white on greenish prepared paper. But this is not the white paper covered with a green primer that was particularly common on both sides of the Alps. Rather, and this is a telling discovery, blue uncoated paper was used here, which was then extensively tinted green [Fig. 7]. The question arises as to why Burgkmair chose the greenish preparation – which could have been applied by an apprentice to suggest the artist’s workshop structure – and did not draw the light-shadow modeling directly on the blue paper underneath.

One can assume that the Berlin colored-ground drawing testifies to Burgkmair’s intensive reflection on the new printing process. As such, the greenish preparation was necessary to anticipate the printed color plate, on which soft transitions to stronger shading were created with a watery wash in gray-brown, similar to the tone blocks in *clairobscur*-woodcuts. However, despite all the close attention paid to the production and aesthetics of the drawing and the print, a compromise remained in the respective outcome: in the drawing, the final white highlights had to be added by hand instead of just leaving the white paper blank as in the woodcut. Still, the final effect is closer to what the different processes would indicate. It is worth considering the blank paper not as a mere gap, since the white areas of the print also stand out in relief due to the high pressure on the paper during the printing process.

What we can conclude from this is another similarity in both techniques, the colored-ground drawing and the *clairobscur*-woodcut, which are purposefully formed through overlapping fields of color. In terms of printing, exactly carved plates with clear edges have to be arranged accordingly through all steps of the entire printing process leading up to the finished work of art. During the process, the individual plates become highly abstract fields of color that only in the end create a coherent image. As such, this partitioned process can be regarded as one important step in the history of manufacture and mechanics, since it breaks down a complex proceeding for better handling. At the same time, the collaborator’s perception of the full process is no longer possible. Based on this microcosm of artistic production, we can draw conclusions about how we see our environment, how holistic our reactions are to it, and how individually or generally we participate in it. However, this procedure transforms as soon as we look at the finished print: the print provides a certain insight into its creation, since the overlapping color fields are still visible in the final status, even as the eyes respond to the information with a compositional way of seeing an entire depiction and discovering a high amount of plasticity. If we want to compare the picture with our view of the environment, it is inspiring to consider the artistic technique as a demonstration of what Gibson meant by the perception of hidden fields that are behind overlapping fields or objects. This technique reveals the complexity of human perception, which is not limited to the mere visible but includes more, namely the understanding of three-dimensionality and spaces that may lay behind the momen-



[Fig. 7]

Detail of [Fig. 6] in raking light © Archive of the author.

tary image (“cognitive map”).⁶⁵ Whereas the edges of the color fields within the depiction could correspond in Gibson’s terminology to “covering edges”, the edge of an image – of the paper, panel, or canvas – signifies the very end of the format itself and as such of the depicted world from which various methods about the perception and the essence of art as well as about the discipline of art history emerges. These are matters that are equally important for the drawing, even if it has a more narrowed function in its creation. Nevertheless, from the outset it is intended to be perceived – whether as a presentation drawing or as a model for the woodcarver and printer. As such, it occupies a position within a social ecology from the very first second.

Since inherently colored papers are very rare among the preserved drawings north of the Alps in the early sixteenth century, although they were already common in Italy during the fifteenth century, Burgkmair’s only use of this paper in 1511 speaks of his determined examination of the Italian drawing practice, regardless of where the very paper he used was produced. For Burgkmair, his occupation with the Italian tradition also led to the frequent reliance on red chalk.⁶⁶ This does not mean that he necessarily spent time in Italy. Nevertheless, at the time it was in no way conventional to be guided by Italian art, but rather by a modern approach that showed an awareness of foreign traditions against the background of local or regional customs, and as such a realization of what home versus remoteness means. This is certainly an insight that becomes intensified by one’s own experience of traveling. However, the trade – especially vivid in Augsburg with a direct route across the Alps⁶⁷ – may have induced much for those who stayed.

However, a watermark, which would have provided proof that inherently blue paper was produced in Augsburg at that time, was not found on this drawing.⁶⁸ So, transregional trade relations, especially against the background of the second statute of Bologna of 1454, are to be considered as well. The statute included the concession that paper producers were henceforth allowed to accept external commissions and to make paper that differed from the

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Gibson, *Ecological Approach*, chapter 5, *The Ambient Optic Array*, 58–84; chapter 11, *The Discovery of the Occluding Edge and Its Implications for Perception*, 180–192; et passim.

66

Falk, Hans Burgkmair. *Studien zu Leben und Werk*, 61–64; Falk, Burgkmair, der “vernachlässigte” Altdeutsche, 10–12. Genevieve Verdigel, in her discussion of the early use of red chalk in Venice, questions the widely held belief that Leonardo was the first artist to use red chalk for drawing, see Genevieve Verdigel, *On the Origins and Functions of Red Chalk in Venetian Drawings circa 1450 to 1540*, in: *Arte Veneta* 78, 2021, 102–119.

67

Tschudin, *Grundzüge der Papiergeschichte*, 100–101: “Trade routes were either from Genua over the western Alps or from the Veneto region over the eastern Alps.” Andrew Morrall, *Jörg Breu the Elder. Art, Culture and Belief in Reformation Augsburg*, Aldershot 2001, here 73–76.

68

Weiß, *Zeittafel zur Papiergeschichte*, mentions paper mills in the Free Imperial City Augsburg from 1460 on, see 66 et passim.

formats and weights named in the statute as long as those papers were exported.⁶⁹ This, in turn, led to a differentiated view on local customs and regulations versus foreign perspectives, which resulted in a transregional network of various interests and as such helped acceptance of the other's approach, which in turn served to promote collaborating concepts and inventions on the market.

Franz Irsigler has shown how closely knit the networks were between papermakers, both north and south, and even beyond the Alps.⁷⁰ Bills and other sources documented in Gerhard Piccard's volumes of watermarks, for instance, prove that grayish wrapping paper was also produced in mills north of the Alps during the sixteenth century.⁷¹ In Ulman Stromer's paper mill, founded in 1390 close to Nuremberg, for example, paper of higher quality was too expensive to make, so the mill was forced to continue exclusively with wrapping paper before closing down completely in 1456.⁷² This clarifies, though, that colored papers were manufactured north of the Alps even before Dürer discovered blue paper as a substrate for drawing in Venice in 1505. In fact, there might have been a difference in quality, which is probably why artists in the north did not use it before being inspired by Italian draftspeople. Nevertheless, a development in the quality of the paper also took place in Italy, which was – we have to bear in mind – by no means driven by artists, since papers in general were not made for artists before the late eighteenth century.⁷³

Even though there is a late fifteenth-century German recipe in the *Nürnbergger Kunstbuch*, which explains how to immerse individual “white paper sheets in a blueberry juice solution containing alum”,⁷⁴ the demand for blue paper from paper mills, by contrast

69

Gasparinetti, Ein altes Statut, 47.

70

Irsigler, Überregionale Verflechtungen, 253–275.

71

Gerhard Piccard, *Die Turm-Wasserzeichen*, Stuttgart 1970, 19, city bills Schwäbisch Hall, 8774, Salem 1615, supplement 27: “2 riß graw packhpapir zu 9 batzen”; Gerhard Piccard, *Die Kronen-Wasserzeichen*, Stuttgart 1961, 25: “In the city archives of Wesel, Upper Rhenish-Vogesian, gray maculature papers from the second third of the 16th century with the high crown as a paper mark were found.” Furthermore *ibid.*, 27. On the obscure definability of the “Upper Rhine-Vogesian” metropolitan area see also Hans Kälin, *Papier in Basel bis 1500*, Basel 1974, 126.

72

Irsigler, Überregionale Verflechtungen, 261, 263–264. Wrapping papers were exclusively produced from wool, see Kälin, *Papier in Basel*, 22.

73

Bower, Blues and Browns and Drabs, 45; Thea Burns, *The Invention of Pastel Painting*, London 2007, 33, with further literature.

74

Brückle, *The Historical Manufacture*, 20, and further 24: “Little wonder that dye recipes were regarded as mill secrets, and only sporadically recorded.” See also Tschudin, *Grundzüge der Papierherstellung*, 171–172. For the oldest paper dyeing recipe from the 15th century, see Emil E. Ploss, *Ein Buch von alten Farben. Technologie der Textilfarben im Mittelalter mit einem Ausblick auf die festen Farben*, Heidelberg/Berlin 1962, 117, Recipe No Iviii: “Wiltu grüne farb machen auf papir, so nym safftgrun, temperir den auch mit essig vnd thu ein wening alau dar vnter, so wirt es gar gut.”

to Italy, was never in such demand. In the so called “Bergpostille” (1564), Mathesius’s verdict was negative: “For coarse and blue and gray wrapping paper and all evil books belong cheaply in the stores and to the coppersmith (*rotschmid*) to make paper cones (*scharnützlein*).”⁷⁵ It might be telling that Burgkmair chose a rather coarse paper as it may indicate its origin from north of the Alps. Wrapping paper is characterized by irregularities, since the otherwise avoided wool and silk fibers absorb the dye with varying intensity compared to linen and hemp.⁷⁶ In addition, the paper pulp is usually not stamped quite as extensively into a uniform substance as is the case for high-quality white paper, so that coarser fibers remain in the pressed, dried, and finished paper.⁷⁷ These fibers are visible on the paper surface of the Berlin drawing, even under the layer of opaque black paint [Fig. 8]. Ultimately, this provides a technical explanation for the colored preparation, since the lesser glued paper behaves in a way similar to blotting paper, which requires a primer. But there are other reasons why Burgkmair could have chosen to prepare the paper with a greenish ground: one might be to avoid the rather quick fading of the paper’s color – even if the blue paper is covered and only serves as a primer (*Imprimitur*) to intensify the green of the applied colored ground. A second, and even more important, reason could have been to reproduce as closely as possible the qualities of a coin and its metal materiality, which could be better imitated with thick coated paper, making it even rather stiff, than with the merely blue paper.

Nevertheless, the question remains why Burgkmair used this rather rough and cost-efficient paper for such a prestigious project at all. Even if it was produced in southern Germany, there are still many reasons to consider it as a sign or even a “quotation” of the Italian drawing manner. Therein may lie the main interest of its use for this project: to pay tribute to the Rovere pope in a multi-faceted way, including through the aesthetics of the underlying drawing material. This may have been a valuable aspect in humanistic circles, as the influential Conrad Peutinger commissioned Burgkmair to create woodcut portraits of several personalities of high rank and

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Jacob Grimm and Wilhelm Grimm, *Deutsches Wörterbuch*, 30 vols., Leipzig 1893, vol. 8, col. 2212–2213: “Denn grob vnd blaw vnd graw schlag papier vnd alle bösen bücher gehören billich in die leden vnd zum rotschmid, daraus man scharnützlein mache.” See also Cornely, *Eine papiergeschichtliche Untersuchung*, 52. Regarding the profession of the “rotschmied” and its history see Andreas Geis and Andreas Tacke, *Werkstattproduktion eines Rotschmieds in Nürnberg. Das Inventar der Katharina Amman*, in: Andreas Tacke and Franz Irsigler (eds.), *Der Künstler in der Gesellschaft. Einführungen zur Künstlersozialgeschichte des Mittelalters und der Frühen Neuzeit*, Darmstadt 2011, 195–212.

76

Brückle, *Blue-Colored Paper*, 77: “Some blue papers also contain wool and silk fibers, which were not used in writing or printing paper, but were acceptable in wrapping paper and even desirable in paper used for pastel painting.” Tschudin, *Grundzüge*, 69; also cotton, Schultz, *Papierherstellung*, 61–62. See also Jérôme de La Lande, *Art de faire le papier* (new. ed.), Paris 1820, 15: wool and silk leftovers can be used in a high proportion of linen rags to make wrapping paper.

77

Tschudin, *Grundzüge der Papiergeschichte*, 93; Brückle, *Blue-Colored Paper*, 76–77.



[\[Fig. 8\]](#)
Detail of [\[Fig. 6\]](#) in raking light © Archive of the author.

of ancient sovereigns. Additionally, he was a crucial early supporter of the artist's career.⁷⁸ It may not be a coincidence that in 1509 Peutinger was interested in learning more about Pope Julius II's facial features when he corresponded on the subject with an abbot and a Roman goldsmith.⁷⁹

The attention paid to the material below the representation, and the preservation of its color, which becomes almost invisible in the drawing process, reveal a specific awareness of the material and, without going too far, equally of the conditions of its production. Moreover, the case clearly shows the intertwined reflection of self and other that is crucial for aspects of social ecology.

IV. Breu's Italian Approach as Historical and Ecological Consequence

Jörg Breu's Budapest drawing on blue paper for the *Story of Lucretia* [Fig. 9] takes us in another direction. It is a preparatory study for the oil painting in Munich from 1528. Needless to say, the drawing is much smaller than the painting. Furthermore, we find some differences in the position of the figures, their drapery, and in the silhouette of the city seen through the *loggia*. Breu pays great attention to the architecture and its three-dimensional depiction in a linear perspective. The construction of lines converging towards a single vanishing point even runs through the figures and was probably executed before they were added.⁸⁰ The verso [Fig. 10] further underlines Breu's concern with spatial construction.

In the catalogue raisonné of the German Drawings in the Museum of Fine Arts in Budapest, Szilvia Bodnár pointed out that this drawing is "one of Breu's most Italianate works".⁸¹ And it seems likely that an artist based in Augsburg would have easily been able to consult Italian books on perspective by the likes of Alberti, Lorenzo Ghiberti, or Piero della Francesca. In 1525, three years before his death, Dürer published his treatise *Unterweisung der Messung*, which goes back to his studies of those sources. Yet, one can immediately see that Breu followed his own way, employing an approach that does not match the Italian theories, since the lines seem less compelling for the depiction of the architecture than for the postures of the figures. However, the ideal concept of perspec-

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Falk, Hans Burgkmair, Studien zu Leben und Werk, 45.

79

Ibid., 56; Hans Burgkmair, 1473–1531. *Holzschnitte, Zeichnungen, Holzstöcke* (exh. cat. Berlin, Staatliche Museen zu Berlin, Kupferstichkabinett), ed. by Renate Kroll und Werner Schade, Berlin 1974, 17–18, No. 21.

80

See also Andrew Morrall, The 'Deutsch' and the 'Welsch'. Jörg Breu the Elder's Sketch for the *Story of Lucretia* and the Uses of Classicism in Sixteenth-Century Germany, in: Stuart Currie (ed.), *Drawing 1400–1600. Invention and Innovation*, Aldershot 1998, 109–130, 111.

81

Szilvia Bodnár, *German Drawings of the Fifteenth and Sixteenth Centuries in the Museum of Fine Arts, Budapest* (coll. cat. Budapest, Museum of Fine Arts), Budapest 2020, 94–96.



[Fig. 9]
Jörg Breu, The Story of Lucretia in Five Scenes, ca. 1528, Pen and brush on blue paper,
214 × 312 mm. Budapest, Museum of Fine Arts, inv. no. 62, recto © Museum of Fine Arts,
Budapest.



[Fig. 10]
Jörg Breu, Perspective Construction, ca. 1528, Pen on blue paper, 214 × 312 mm. Budapest,
Museum of Fine Arts, inv. no. 62, verso © Museum of Fine Arts, Budapest.

tive is a mathematic construction that does not initially take into account any natural preconditions or specifics. As Gibson pointed out, the objects in perspective studies such as those by Euclid or Ptolemy are geometric bodies, not amorphous forms as seen in the extravagant draperies of Breu's picture.⁸² The artificial perspective, instead, also excludes natural incidents of the sky or even any backgrounds between figures or objects. With regard to Breu's drawing, it is precisely this difference that occurs in the entire variety of compositional elements and as such provides an example of the complexity of artistic depiction.

Even in its discolored state today, the blue paper Breu has chosen gives us yet another example of the view held by artists north of the Alps that blue paper is a sign of an Italian method. Andrew Morrall and others assume a journey to Italy in the 1520s in order to explain Breu's interest in the Italian style, evidence of which may also be sought in the Italian prints in his possession.⁸³ What Morrall emphasizes most, however, is the way in which German artists of the time generally reflected the Italian style. This, he argues, was triggered by the Reformation, which was felt as bringing uncertainty to the status of art itself. This led to competition among German artists, who wanted to show off their ability to reference a tradition and culture like that of the Italians. Referring to Heinrich Vogtherr's *Kunstbüchlein* from 1538, Morrall argued convincingly that this competition "also displays the desire to emulate, if not surpass, the Italians in the use of a consciously home-grown classical style".⁸⁴ Breu is a case in point for such an individual approach.

Against this wider background, it is crucial to emphasize the impact such a development has had on the work of the artist. Uncertainty about the status of art is accompanied by a decline in commissions as well as the questioning of art and its function. What emerges from this is the questioning of artistic labor in general. As such, the inventive gesture of drawing, the interrelated processes between mind and hand, loses its significance and becomes a doubted skill insofar as it aims at an illusionistic and not instructive mode of representation. Nevertheless, it carries the potential to react to new demands and challenges. To transfer this potential to an international exchange in the pursuit of repositioning art means more than competition. Again, to understand the artist within the environment, shaping as well as observing it while receiving information and being provided with the resources indispensable to life,

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Gibson, *Ecological Approach*, chapter 5, *The Ambient Optic Array*, 58–84.

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Melanie Kraft (*historia, narratio, exemplum. Jörg Breu d. Ä. und die Historienbilder für das Herzoghaus München*, Heidelberg 2020, 88–91) questions Breu's as well as Burgkmair's sojourn in Italy.

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Morrall, *The 'Deutsch' and the 'Welsch'*, 122; id., *Jörg Breu the Elder, 136–151, 218–243*. On the function of art in the context of the Reformation see also Joseph L. Koerner, *The Reformation of the Image*, London 2004, esp. 27–37.

is a crucial perspective as it shifts the focus onto a socially motivated ecology. In this sense, since Breu worked for the Habsburgs as well as for the Wittelsbachs, “the artist’s overall production”⁸⁵ is – following Pia Cuneo – to be contextualized in relation to his “social interaction [that] was decidedly mixed, so that his social identity, in some ways like his confessional identity [...] was flexible and complex”.⁸⁶

In this respect, Breu’s specific composition of the iconography [Fig. 9] might be telling as it reveals a certain focus on political dimensions, which is mirrored in the Munich commission by Duchess Jacobäa von Baden and Duke Wilhelm IV and as such serves as *exemplum* for the good regency of the Wittelsbachs. The composition emphasizes the importance of the pictorial space by showing five subsequent scenes simultaneously. It begins with a private scene (Lucretia in bed on the left), continues with two scenes in a semi-official compartment in the middle (Lucretia’s confessing, to her husband, father, and friends, the forced rape – which prompted her suicide – by Roman prince Tarquinius Sextus), and ends with the open market-place in an official setting. This is crucial insofar as Lucretia’s family mobilized the people to oust the regime and to herald a new era with greater respect and justice.⁸⁷

By referring to Italian as well as regional sources, Breu’s Italianate style and his use of blue paper are a result of reflection and an ecological consequence in terms of situating himself in his environment, reaching out to greater distances in order to intertwine with promising dimensions. Thus, it is no longer decisive that the watermark is illegible and that we cannot tell definitively whether Breu drew on Italian or southern German paper. For the Italian borrowings emulsify, layer upon layer, into a new conception of art that is more concerned with an osmotic exchange and enrichment than with a delimiting competition. The fact that Breu resorted to blue paper for this drawing is an exception in his oeuvre, as it is for Burgkmair. In both cases, however, the miscellaneous use of this aesthetically appealing paper for a specific atmospheric effect may also reflect economic factors. The use of blue paper may simply be due to its (inexpensive) availability, but artists knew how to use it specifically for their projects. Much more significant, however, is how in the contexts exemplified above the social effects of environmental conditions, as materialized south as well as north of the

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Pia F. Cuneo, *Art and Politics in Early Modern Germany. Jörg Breu the Elder and the Fashioning of Political Identity, ca. 1475–1536*, Leiden 1998, 61, see also *ibid.*, 184: “Seen in relation to the European-wide stage upon which the drama of Protestantism was acted out, the unswervingly Catholic Wittelsbach dukes remained minor actors on a provincial scale.”

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Ibid., 61. See also Stefanie Herberg, *Der verfluchte Maler? Jörg Breu der Ältere und der Bildersturm in Augsburg*, in: Tacke and Irsigler, *Der Künstler in der Gesellschaft*, 288–302, with further literature.

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Kraft, *historia, narratio, exemplum*, 46–91.

Alps and increasingly interconnected across the Alps, coincided with environmentally friendly dimensions.

V. Conclusion. Blue Paper Made North of the Alps as Ecological Bridging

To conclude and to add a further twist, several drawings [Fig. 11 and Fig. 12]⁸⁸ in the Erlangen collection of prints and drawings, for instance, prove that using blue paper became more common for artists working in Augsburg during the first half of the sixteenth century. As far as there are detectable watermarks, they are most similar to those being applied in northern regions close to the Alps such as Innsbruck or Graz. Nevertheless, these drawings have a certain relationship to Venice and again prove that blue paper was used in various ways as a sign of reference to Italy – the *Pipe Organ for the Fugger Chapel of St Anne* [Fig. 11] shows, for example, a modern Venetian type of box organ with pipe compartments in round arch arcades, whereas the *Song for Five Voices* [Fig. 12] is dedicated to the Netherlandish composer Adrian Willaert, who was active in Venice.

Above all, the three presented case studies – Dürer, Burgkmair, Breu – demonstrate one thing: the significance of hand drawings for socio-cultural and political negotiations, which were defined in a targeted and pioneering way by art and its inherently ecological structures. Part of the ecological structure is the choice of artistic material, which must be included in any iconology with all its geographical, geological, economic, political, socio-cultural preconditions. At the same time, the decision to employ a particular material also clarifies the environmental circumstances and the general interconnectedness. Only from these preconditions can types of social organization and international references be traced and art be located in this complex structure of ecologies. In doing so, it becomes evident that ecological dimensions go beyond an environmentalist consciousness, as they consist in an awareness of nature's resources and their depletion and as such primarily address the social effects of environmental conditions. These highlighted directions allow us to usefully apply as well as meaningfully differentiate the concept of the ecological for the early modern period and to rethink human relationships to nature, which has never been more urgent than today.

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Zeichnen seit Dürer. Die süddeutschen und schweizerischen Zeichnungen der Renaissance in der Universitätsbibliothek Erlangen (coll. cat. Erlangen, Universitätsbibliothek), ed. by Hans Dickel, Petersberg 2014, 22–23 (Iris Brahms), 303–304 (Christine Demele).



[Fig. 11]
Augsburg, Pipe Organ for the Fugger Chapel of St Anne, copy of design drawing, ca. 1512,
Pen and brush on blue paper, 517 × 412 mm. Erlangen, Universitätsbibliothek, Graphische
Sammlung, inv. no. B 370 © Graphische Sammlung der FAU, Erlangen.



[Fig. 12]

Augsburg, Song for Five Voices, composed by Adrian Willaert (Venetus), one of a series of five drawings, ca. 1550. Pen and brush on blue paper, D. ca. 276 mm. Erlangen, Universitätsbibliothek, Graphische Sammlung, inv. no. B 1064 © Graphische Sammlung der FAU, Erlangen.

mediality, gender studies, and the history of science. She is author of the book *Zwischen Licht und Schatten. Zur Tradition der Farbgrundzeichnung bis Albrecht Dürer* (2016), editor of the volume *Gezeichnete Evidentia. Zeichnungen auf kolorierten Papieren in Süd und Nord von 1400 bis 1700* (2021), and is currently working on a book about pastel painting in the eighteenth century.