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CONJOINED: DÜRER AND LEONARDO

M. A. Katritzky

Abstract

Within months of each other, two prominent Renaissance artists produced starkly contrasting drawings of atypical bodies on the human conjoinment spectrum. Albrecht Dürer's polished and dated coloured drawing of 1512 depicts two-headed conjoined twins Elsbeth and Margit Mandelin-Engelhartin, who died in 1512, days after their birth in Ertingen, Germany; Leonardo da Vinci's tiny ink sketch records a youth whose headless conjoined twin grows from his chest. Dürer amply documents his subjects, specifying their names, date and place of birth; for Leonardo's twins, these details are first provided here. The visual sources and medical accuracy of Dürer's unrealistically standing newborns are uncertain; Leonardo's minute sketch accurately records parasitic conjoined twinning. This archive-based enquiry applies interdisciplinary methodologies to my review of prior scholarship, with extensive reference to early modern textual and visual documents previously unconnected to these drawings. For art history, I reconsider Dürer's visual sources and confirm the dating of Leonardo's drawing to late 1513. For medical history, I initiate rigorous anatomical scrutiny of Dürer's conjoined bodies; contextualizing Leonardo's subject within related visual and textual documentation enables me to identify him as the earliest named case of this type of parasitic conjoined twinning to survive beyond infancy. As a theatre specialist, I situate the Mandelin-Engelhartin twins as passive performers, shown for gain by their parents and provide the name, date and place of birth of Leonardo's subject: he is Jacques Floquet, born in Dreux, France, in 1500, and I confirm his high-earning status as a professional itinerant performer and extend our knowledge of his commercial strategies and performative practice, based on exhibiting his conjoined body.

Keywords: conjoined twins, parasitic twins, Albrecht Dürer, Leonardo da Vinci, Jacques Floquet; Ertingen
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Biographical note

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Banner image: Detail of niello-inlaid engraving of a haloed eagle-headed St. John the Evangelist upon gold plaque from Brandon, Suffolk. (©The Trustees of the British Museum. Shared under a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International [CC BY-NC-SA 4.0] licence)

CONJOINED: DÜRER AND LEONARDO

M. A. Katritzky, The Open University

Introduction[1]

Leonardo da Vinci exhaustively recorded internal and external human anatomy. Inspired by Leonardo during his second visit to Italy (1505–6), Albrecht Dürer started compiling the first treatise on the aesthetics of male and female proportions around 1512 (Dürer, 1528; Panofsky, 1955, pp.151, 172, 266). The two artists shared an intense interest in representing the human body in all its diversity; as physically 'perfect' or normative, but also as a vehicle for temporary unusual poses and expressions and permanent bodily marks of illness, accident (pre- or postnatal) or inheritance. As the most influential Renaissance artists of the human body, their depictions of atypical bodies are exceptionally valuable. As well as drawing on conjoinment in allegorical, generic and zoological contexts, each once records historical conjoined twins. Dürer's coloured drawing of 1512 documents the symmetrical conjoinment of female South German newborns Elsbeth and Margit Mandelin-Engelhartin (Fig. 4.1); Leonardo's tiny ink sketch of 1513 (Codex Atlanticus fol.48r) records a youth, first named here as Jacques Floquet, displaying his parasitic conjoined twin.[2]

Previous (always separate) studies of the two drawings question neither their anatomical accuracy nor the commonly expressed views that Leonardo's was drawn from life, Dürer's after broadsheet illustrations. Comparative study is invited by the drawings' closeness in date and by their artists' personal contacts and shared deep interest in the accurate depiction of the human body. To what extent do these drawings depict medically valid conjoinment? Could Dürer have accessed sources other than the four known commemorative broadsheets? What iconographic sources could Leonardo have accessed? Did the two artists produce non-historical conjoinment images? These are among the questions addressed here.

Conjoined twins have been globally documented since prehistoric times; their images are among the earliest of all cultural records (Warkany, 1977). In a lecture presented on 22 January 1975, Michel Foucault identified the privileged monsters of the Middle Ages as human-animal hybrids and those of the eighteenth century as hermaphrodites. Foucault recognized conjoined twins, routinely related to Reformation and political issues involving the splitting or joining of churches, states or ruling families, as 'the form of monstrosity especially privileged during the Renaissance' (Foucault, 2003, p.66). Recognizably human conjoined twins of the type depicted by Dürer and Leonardo were routinely baptized, as recorded in many documents, including broadsheets relating to the Mandelin-Engelhartin twins:

> Wie vornen biβ an nabel bayd / Waren zway kind vnd zway mayd

1 Otherwise unattributed translations are mine. While acknowledging the invaluable contribution of Disability Studies, my preference is to avoid the term 'disabled' in the early modern theatrical context. 'Monster' is here used as an historical term; 'parasite' and 'parasitic (conjoined) twin(s)' are used as formal scientific terms following current medical usage; 'atypically–bodied' follows Emily Jean Hutcheon (2013).

2 Leonardo da Vinci (1452–1519), *Parasitic conjoined twins* [here identified as Jacques Floquet], drawing, Codex Atlanticus, fol.48r, Biblioteca Ambrosiana, Milan, available at: https://teche.museogalileo.it/leonardo/foglio/index.html?num=ATL.0095.1&lang=en

> Vnderhalben ains, hetten zwen namen / Dann do sy zü dem tauff kamen
>
> Zway haupt zway hertz all synnlichait / Mit zwayen selen worens klaidt.
>
> *At the front down to their shared navel, they were two children, two girls; below one. They had two names because when they were baptized they possessed two heads, two hearts, complete feeling and two souls.*
>
> (see Fig. 4.2, where this passage of text is covered by the illustrated moveable flap).

Nevertheless, live conjoined twins 'call into question the way we think about time, space, and even representation itself' (Bearden, 2019, p.182); conjoinment strains the very definition of which bodies qualify their possessors for legal, social, marital and medical admissibility as human (Dreger, 2004; Sharpe, 2011). The pre-Enlightenment concept of the human blurred boundaries between human, ape and liminal hybrids, reflecting attempts to rationalize observable physical nonconformities, ethnic variations, even the mythical: mermaids, centaurs and sphinxes (Katritzky, 2014, pp.110–12). Dürer and Leonardo's representations of human conjoinment bring into sharp focus some challenges of evaluating Renaissance images of anatomically atypical human bodies. Informed interpretation of pre-photographic imagery requires an understanding of differences distinguishing early modern perceptions of atypical bodies from current teratological classification systems. Here, I identify the major shift as the progression from random categorization of different types of conjoinment, in terms of superfluous or missing body parts, to increasing acceptance of conjoinment as the most complex and varied type of congenital anatomical nonconformity, contributing a predictable spectrum of interdependent medical conditions (Spencer, 2003, endpapers). Modern health professionals emphasize the extreme rarity of human conjoinment, typically citing around '1.5 per 100,000' (Boer et al, 2023, p.1). Based on large-scale historical birth records (Rüttel, 1844, p.266), my own analysis suggests that, by including *only* live births and *all* live births, this approach substantially underplays the occurrence of conjoinment as a source of congenital non-genetic complications. Including gestations that do not achieve live birth, it could affect above 1:2,000 of its sole at-risk group, namely genetically identical (monozygotic) twins and greater multiple gestations. Arguably better reflected by its extensive iconography than by under-contextualized medical statistics, the high prevalence of human conjoinment illuminates its cultural importance, attracting reporters of every caliber from amateurs to Dürer and Leonardo.

Early modern atypical bodies were viewed as extraordinary natural wonders, prodigies, even as omen-bringing messengers. In *The City of God*, St Augustine confirms Cicero's derivation, in *De divinatione*, of their (then more neutral) appellation, 'monster', from the Latin verb 'monstrare', to show, referencing their 'de*monstr*ative', predictive role (Bearden, 2019, pp.113–14). Because of their perceived social and religious significance, the birth of every early modern monstrous human that came to public attention was recorded as a matter of course. The medieval fashion for documenting individuals and ethnicities with atypical or unfamiliar bodies in manuscript illuminations persisted into print culture. From the 1490s incomparably cheaper than manuscript, print enabled the early modern publication and distribution of large editions of illustrated broadsheets within days of newsworthy events such as prodigious births. These generated a rich source of *ephemera* for wonder books and chronicles such as Hartmann Schedel's 1493 *Liber chronicarum*, one of the earliest substantial German language printing projects. Produced in the workshop of Michael Wolgemut (1434–1519), to

whom the young Albrecht Dürer was apprenticed from 1486 to 1491 (Ekserdjian, 2023, p.11), it depicts many anatomically atypical or ethnically unfamiliar 'Marvels of the East', several featuring human conjoinment (Katritzky, 2021, p.206, plate 5). Dürer's considerable book illustration activities also contributed to the Basel lawyer and humanist Sebastian Brant's commercially successful publications (Kaimowitz and Kammradt, 1994, p.8). These included broadsheets commemorating female twins joined at the head born near Worms during the 1495 Diet of Worms, who survived for ten years and the double pig commemorated in Dürer's celebrated print of 1496, *The Monstrous Pig of Landser* (see below).

Only in the twentieth century did art historians identify the mythical Molionides twins, Eurytos and Kteatos, in a Dürer print of *c.*1496–7, then retitled *Hercules slaying the Molionides twins* (Strauss, 1980, p.127; Hollstein, 1954, No.138; Simon, 1971, pp.263–4 & cat.506). Described as conjoined by Hesiod, but not by Homer, they were named after the Greek Queen Molione, who conceived them with Poseidon and/or her husband Aktor (Dasen, 1997). Non-historical conjoinment also featured in Dürer's drawing of the two-faced (diprosopus) *Prudentia* (*c.*1494–6, Musée du Louvre) and several images associated with Leonardo. A two-faced *Prudentia*, a double-bodied hermaphrodite and an androgyne feature in three of his allegorical drawings in Christ Church Picture Gallery, Oxford (Popham, 1946, pp.88–90, nos.105, 107, 108; Nova, 2001 [all 3 reproduced]; Keizer, 2012). His most well-known anatomical drawing depicts a multi-limbed *Vitruvian Man* (*c.*1490, Gallerie dell'Accademia, Venice). As well as the sketch of the boy with his parasitic twin on fol.48, the *Codex Atlanticus* collection of Leonardo drawings, dating from 1478 to 1519, contains a crude sketch (fol.58) of a double-sexed monstrous birth (Pedretti, 1978, pp.307–17; Ciseri, 2014, pp.92–102). Possibly after Leonardo, this winged hermaphrodite references one or both atypically-bodied still-births recorded in 1506 in Florence and in March 1512 in Ravenna (Daston and Park, 1998, pp.177–81; Sá and Viegas, 2022, pp.1–30). Internationally circulated broadsheets commemorating the 'Ravenna monster' immediately inspired Italians such as Sebastiano di Branca Tedallini (1911, p.327), Luca Landucci (1883, p.314), Marin Sanudo (1886, vol. XIV, col.200), Giovan Francesco Vitale (1512) and Marcellus Palonius, who described this birth as two-headed conjoined twins (1513, sig.F3r: 'gemino capite'), prompting numerous further reports in wonder books and broadsheets (for example, Fig. 4.2). A lost drawing of historically recorded conjoined twins born around 1499 is attributed to Leonardo by Lomazzo (1585, p.637). Bought for Cardinal Barberini from the collection of Francesco Villamena in 1624 by Cassiano dal Pozzo, it inspired a print in Fortunio Liceti's influential treatise on human monstrosity, whose illustration of male conjoined twins with two faces on their shared head (janiceps) in later editions is thought to be derived from Leonardo (Liceti, 1634, pp.134–5). The following sections examine Dürer and Leonardo's depictions of historical conjoined twins.

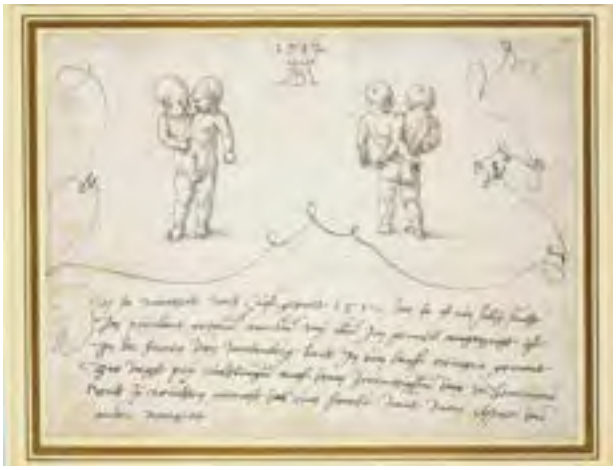

Figure 4.1: Albrecht Dürer (1471–1528), *The conjoined twins of Ertingen* (Elsbeth and Margit Mandelin-Engelhartin), 1512, pen and black India ink, 15.8 x 20.8cm, Ashmolean Museum (WA1855.102 PI291), Oxford (Strauss, 1974, vol.3, p.1312) (© Ashmolean Museum, University of Oxford)

Dürer

Fig. 4.1, signed and dated 1512, depicts the nude bodies of conjoined twins Elisabeth or Elsbeth and Margareta or Margit. Jointly known as Elsgret, they were born to Paulo Mandelin and Barbara Engelhartin on 20 July 1512 in the village of Ertingen. Additional to Dürer's drawing (Fig. 4.1), four commemorative broadsheets are known, of which two are here reproduced (Figs. 4.2 and 4.3).

The Mandelin-Engelhartin twins are depicted from both front and back in Fig. 4.2 and a broadsheet in Eichstätt (Universitätsbibliothek GS(3)14.55.3. Littger, 2003, fig.1; Spinks, 2005, pp.91–102, fig.6; Karr Schmidt, 2006, p.124, fig. 2:37; Spinks, 2009, pp.42–49, fig. 2.5); from the front only in Fig. 4.3 and in a broadsheet in Erlangen (Universitätsbibliothek H62/Einblattdruck sign.A IV 3. Littger, 2003, fig.4; Spinks, 2005, fig.8; Spinks, 2009, fig. 2.7; Voeste, 2022). Fig. 4.1 exemplifies the sole category, 'subjects of wondrous or monstrous creation', in which Dürer continued to initiate major drawings beyond his mid-20s by adapting images created by others (Porras, 2013, p.68). Beyond isolated concerns that their images are "probably not taken from life" (Karr Schmidt, 2006, p.123, & 2018, p.146), the secondary literature barely hints at concerns regarding the medical accuracy of the depicted conjoinment.

Specialists convincingly argue that Dürer's drawing is based on one of these two 1512 broadsheets which, like his drawing, depict the Mandelin-Engelhartin twins twice, from front and back. They are the Eichstätt broadsheet, which has both images printed directly onto its recto and Dürer's more likely source is Fig. 4.2, a text-bearing broadsheet with a hinged flap illustrated on both sides pasted down its middle (lacking in some impressions, see Karr Schmidt, 2021, p.36). Unlike the other three prints, it, like Dürer, notes the girls' baptism, and Dürer's text (Fig. 4.1) closely

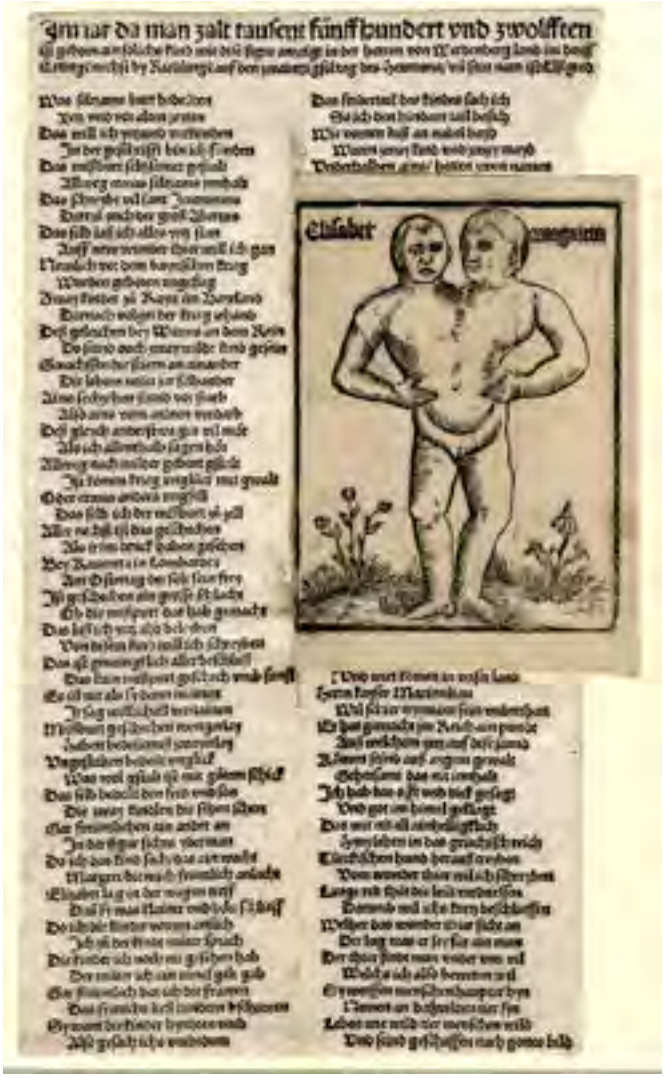

Figure 4.2: Erhard Öglin? (c.1470–1520, printer, Augsburg) (Dodgson, II, p.203), *The Mandelin-Engelhartin twins*, 1512, single-sided woodcut broadsheet with attached double-sided illustrated flap (recto), 11.4 x 8.7cm. London, photo courtesy of The British Museum, Department of Prints and Drawings 1876,0510.619 (© The Trustees of the British Museum. Shared under a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International (CC BY-NC-SA 4.0) licence); (Bartrum, 2002, pp.182–83, nos. 123–124; Littger, 2003, fig.5; Spinks, 2005, figs.4&5; Spinks, 2009, figs. 2.3 (recto) & 2.4 (verso). Further impressions: München, Bayerische Staatsbibliothek, Einbl. I,41, 27.5 x 14cm; National Library of Medicine, Bethesda, n.2526.

follows its Latin title wording. Here, I ask whether potential secondary sources for Dürer can be suggested in addition to these four broadsheets and consider the central, conjoined arm they and Dürer depict, whose anatomical configuration is unrecorded in modern medical images.

For Dürer, like Leonardo, bodies, human

or otherwise, were natural specimens. When circumstances prevent Dürer from drawing from life, as with his 1515 woodcut of a rhinoceros (Bartsch, 1808, 147.136), he creates a "naturalistic" effect by improvising details missing from eyewitness reports and drawings sent to him. A similar process is evident in Dürer's 1496 print, *The Monstrous Pig of Landser*; informed by life as well as by the commercial broadsheet based on Brant's life drawing of the actual monstrous pigs, made on 1 March 1496 (Strauss, 1980, p.212, No.95; Hollstein, 1954, No.82; Wuttke, 1994, pp.108–14; Pollmer-Schmidt, 2013).[3] Heinrich Deichsler's *Chronik* records these pigs as being publicly exhibited in Nürnberg barely a month after their birth and death on 1 March 1496:

> Item darnach kom her zu ostern zwu seu, die warn anainander gewachsen oben und heten all paid neur einen kopf und heten unten ir iede vier füß und iede zwen füß uber sich gerekt, das eine sechs füß het.
>
> Item then two pigs came here at Easter [1496], above they were grown together with only one head between them; each had four feet below and two feet stretched above each, so that each had six feet.
>
> (Hegel, 1874, p.586)

Wuttke (1994, pp.108, 114) speculates on whether only an image was exhibited. Possibly, Brant's broadsheet was here marketed in conjunction with the showing of their rudimentarily preserved remains. Dürer rejects two strong iconographic conventions for depicting Renaissance human conjoined newborns adopted in the broadsheet: the pigs' physiologically inappropriate bipedal standing poses and indeterminate settings. He also ignored the scientific fact that the pigs died on their day of birth and more "naturalistically" depicted them as mature, on all fours and situated on farmland.

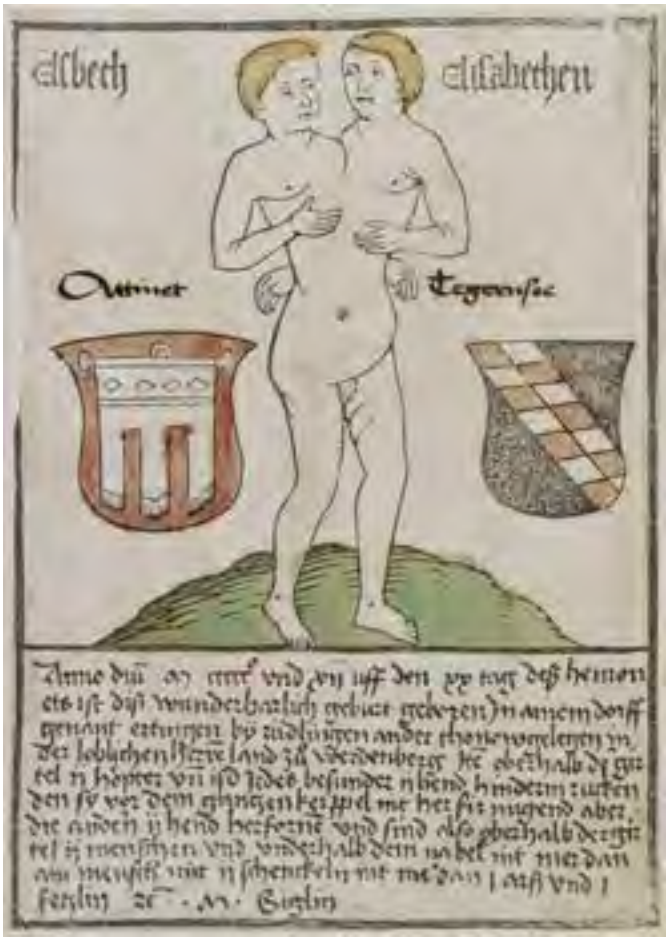

Figure 4.3: Jacob Sieglin (fl.1499–1518, draftsman, Ulm), *The Mandelin-Engelhartin twins*, 1512, woodcut broadsheet. Berlin, Staatliche Museen zu Berlin, Kupferstichkabinett, cat. no. 328–10 (Image credit: image in the public domain) (Holländer, 1921, p.67, fig. 17; Littger, 2003, fig.3; Spinks, 2005, fig.7; Spinks, 2009, fig.2.6). Further impression: Giglin, 1910 (then: Jean Masson, Amiens, now: Paris, École nationale supérieure des Beaux-Arts). Neither impression could be located by Littger (2003, p.75n.9–10).

Dürer's print draws on his personal knowledge of domesticated animals – and probable eyewitness experience of the Landser pigs' exhibited remains in his home city – to radically modify his main source, Brant's broadsheet image.

Dürer is unlikely to have seen the Mandelin-Engelhartin twins either alive or *postmortem*. Although his domestic travels are not well-documented at this time (Ekserdjian, 2023, p.13), domestic commitments during summer 1512, including his June purchase of property in his home city, Nürnberg (Thausing, 1876, p.115)

3 Dürer, *The Monstrous Pig of Landser*, 1496, engraving, 12 x 12.6 cm, London, British Museum, E,2.157.

virtually rule out travel to Ertingen during their brief lifetime. My analysis of the four Mandelin-Engelhartin broadsheets establishes a previously unnoted connection between Fig. 4.3 and the city of Ulm, directly between Ertingen, some 65km distance and Nürnberg, some 200 km in the opposite direction. In 1512, one of Dürer's closest associates belonged to an artists' fraternity based in Ulm, introducing a potential new source for Fig. 4.1. One broadsheet (Fig. 4.3) bears a signature in the block variously read as "a m[anu] Biglin" (Littger, 2003, p.75); Biglin (Spinks, 2005, p.99; Spinks, 2009, p.48), Siglin (Passavant, 1860, I, p.42), Hans Siglin (Nagler, 1846, p.389) or M. Siglin (Bucher, 1875, I, p.372; Leitschuh, 1912, p.188). Reading it as "M[eister] Siglin" allows me to identify its creator as Jacob Sieglin, named in the 1499 directory of artists based at the Wengenkloster, Ulm (Bach, 1893, p.125: 'Jacob Siglin Brief-drukher", a role defined as a commercial draftsman by Lippmann, 1888, p.10). Now the Ulm church of St. Michael zu den Wengen, in the decades around 1500 the Wengenkloster accommodated a religious community and a thriving artists' fraternity. Its registered members include "Jacobus Merklin pictor noster" (died 1526), and from at least 1495 to his death in 1518, also his kinsman "Conradus Märklin, Maler, pictor noster" (Weyermann, 1830; Thausing, 1872, p.149; Leitschuh, 1912, p.191; Buchner, 1953, pp.197–8; Hans Rupprich, 1956, I, p.132; Stange, 1970, II, pp.142–3). The German painter Konrad Merklin, whose oeuvre is restricted to a few uncertainly attributed altarpieces, is best known for being Dürer's long-term close friend (Herrbach, 2003; Sahm, 2002, pp.98–102), valued by Dürer for a jocular correspondence revelling in their 'smutty and laddish sense of humour' (Ekserdjian, 2023, p.44). Locating publication of Fig. 4.3 in Ulm suggests new possibilities. The Ulm connection supports Dürer's own dating of his drawing to 1512, rather than the traditional dating to around 1520 still supported by some specialists (Littger, 2003, p.76; Karr Schmidt, 2006, p.123, n.74). It also identifies Merklin as a potential source for Dürer of the Ulm broadsheet (Fig. 4.3) and further information on the Mandelin-Engelhartin twins.

Both broadsheets featuring back views of the Mandelin-Engelhartin twins depict the same type of shared middle arm as that of Fig. 4.1 (Fig. 4.2; Eichstätt). In the absence of photographic records of similarly conjoined human arms, I here question the extent to which this arm's anatomical configuration can be medically confirmed. Iconographically, Dürer's drawing diverges in numerous aspects from the broadsheet illustrations. The malevolent, muscular pre-adolescents of Fig. 4.2 reappear in his drawing as charmingly plump, unweaned infants, with endearing baby faces, relatively hairless heads and a shared umbilical cord, whose anatomical entwinement is elegantly invoked by their virtuoso arabesque framing. However, Dürer in no way modifies the anatomy recorded in these broadsheets. Five of Fig. 4.2's 116 lines of vernacular verse confirm its author as an eyewitness to the newborns, who paid their mother an additional fee to turn them over and let him view them from the back ('Der muter ich ain trinckgelt gab// Gar freüntlich bat ich die frawen// Das sy michs ließ hindten bschawen// Sy want die kinder hyndten umb// Also gesach ichs umbedum'). The shared central arm he saw there, depicted both by him and by Dürer, is of a type I have not found documented photographically.

The Mandelin-Engelhartin twins have separate heads (dicephalic), sharing a single two-legged body below the navel and with an anatomically normal arm on each of their two outer sides. Such twins (parapagus) are typically either four-armed, each controlling a visually normal second arm between their two heads, or three-armed,

sharing control of one fused central arm. Featuring various combinations of fused and separate double long bones (Förster, 1861, plates I, figs.9, 11; IV, fig. 4; VI, figs. 1–7), the shared third arm varies in anatomical structure from 'a compound limb, containing the elements of two enveloped in a common integument, with separate hands, and in some cases distinct fore-arms, through a series of degrees to little more than a mere hump-like projection containing the fused rudiments of two limbs' (Fisher, 1866, p.280). Habitually accepted by modern health professionals as reliable records of conjoinment, the Mandelin-Engelhartin broadsheets and Dürer's drawing feature a shared central arm fused to the elbow before separating into two forearms. Warkany praises these images for illustrating 'dicephalic children objectively and with correct anatomical descriptions'. Warkany's identification of another central arm of this type in a broadsheet woodcut of parapagus twins born in 1517 (Ewinkel, 1995, Plate 57) is unconvincing; close inspection suggests that they have two separate, closely pressed together central arms (1977, p.5). Bates classifies Dürer's twins as four-armed (2002, p.216), Hori (1998, p.434) as two-armed. Bondeson (2001, p.1436), despite taking Dürer to task for his 'compelling, if somewhat fanciful, drawing of these twins', accepts that their 'anatomy and proportions […] are perfectly illustrated'. Gilbert-Barness and his colleagues praise the 'exceptional clarity' with which Dürer portrayed 'the extraordinary complexity of these gemellus defects of blastogenesis'; evaluating his drawing as an anatomically accurate record of the Mandelin-Engelhartin twins' 'normal right and left upper limb, and posteriorly an upper limb "fused" to the elbow, with distal branching of separate forearms and hands' (2003, p.568).

Elsewhere, I identify and reproduce some 40 pre-photographic images of limbs similarly separating into two at the elbow or knee (Katritzky, 2011). Each records a single-bodied human with four hands and four feet; one growing from each end of their four limbs, each of which branches into two at the elbow or knee. Not previously associated with the Mandelin-Engelhartin twins and persisting into the nineteenth century, I trace their iconographic origins to a woodcut in Schedel's 1493 *Liber chronicarum* (Katritzky, 2021, plate 5). Uniquely, there is one image of a comparable shared third arm iconographically unrelated to this sequence; published in 1775 (Fig. 4.4) and again, with virtually unchanged accompanying text, in 1808, by Moreau de la Sarthe. Its artists, renowned for their scientifically accurate depictions of botanical specimens, here depict anonymous male twins of unknown place or date of birth, identified only as a preserved specimen from the Paris collection of Monsieur Lagon:

> Cet Enfant a deux Têtes bien Conformées a l'exception de la Bouche de l'une des Tetes qui est fendu en Bec-de-lievre, il a 4 Clavicules 4 Omoplates et 4 Bras, deux des Epaules sont reunies ainsi que les deux Bras qui en dependent ils sont adherens l'un à lautre jusque vers les Coudes; la, ils se separent et les deux avant-Bras sont libres; les Mains qui sont a leur Extremité sont bien Conformées les deux autres Bras ainsi que leurs Mains n'ont rien de difformes […] il est venu à terme et Vivant.
>
> This Child has two normal heads, with the exception of the mouth of one head, which has a harelip; he has four collarbones, four shoulder blades and four arms; two shoulders are fused as are the two arms which issue from them; they are fused to each other until around the elbows; there they separate, and the two forearms are free; the hands which are at their extremities are normal; the other two arms, as well as their hands, are not at all abnormal […] He was born at term and live.

These twins are elevated to a rarer category of conjoinment than the Mandelin-Engelhartin twins by their third leg, amputated in the *postmortem* 1775 image (Fig. 4.4). Teratologist G J Fisher

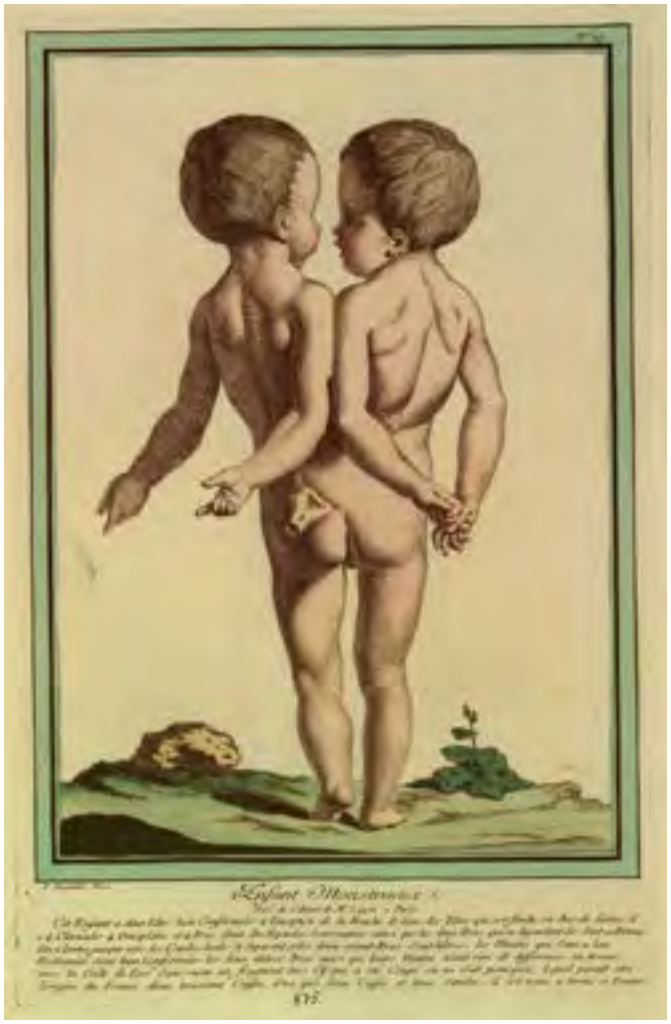

Figure 4.4: Nicolas-François and Geneviève Naugis Regnault, *Les Ecarts de la nature*, 1775, plate 27: "Enfant Monstrueux, Tiré du Cabinet de M Lagon à Paris". Ville de Besançon, B M Étude 11201. (Image credit: image in the public domain)

categorizes them as four-armed (1866, p.274, Case 54). Their shared central arm, depicted as separating before, not at, the elbow, does not confirm the medical reliability of Dürer's drawing (Fig. 4.1). Although inconclusive and all pre-photographic, the additional images introduced here contribute towards a more considered evaluation of Fig. 4.1's anatomical feasibility. Barely addressed by art historians or health professionals, issues of medical accuracy are relevant to our understanding of the contrasting interplay between scientific, religious and artistic agendas differentiating Dürer's and Leonardo's approaches to depicting conjoined bodies as theatrical spectacle and natural wonder.

Secondary literature on the Mandelin-Engelhartin twins routinely emphasizes their historical authenticity, while neither questioning, nor citing evidence in support of, the anatomical reality of the shared central arm depicted in Dürer's 1512 drawing (Fig. 4.1). The numerous related depictions of bodies I have located are all pre-photographic. Only one is potentially medically valid. In the absence of definitive confirmation of genuine examples of this type of human arm in the modern photographic record, the possibility that it more strongly reflects imperfect memory and/or fanciful imagination than medical fact cannot be discounted. Given the unknown relationship between writer and artist, the woodcuts of the broadsheet reporting sight of the Mandelin-Engelhartin twins from the back are unreliable (Fig. 4.2). If this type of arm is anatomically unviable, then Fig. 4.1, like Dürer's *Monstrous Pig* and *Rhinoceros*, is a further visual compromise, offering imprecise anatomies based on unreliable documentation rather than eyewitness experience. Distributed as newsletters far beyond Ertingen, the broadsheets perpetuated the performative experience of visiting the Mandelin-Engelhartin twins during their brief lifetime. Anatomical inaccuracies which might devalue them as souvenir prints for eyewitness spectators had no impact on this far more lucrative market.

Leonardo

With reference to 38 documents (**Appendix**: A.1–A.38), this section contextualizes Leonardo's similarly dated drawing (Codex Atlanticus fol.48r), featuring a contrasting category of conjoinment (https://teche.museogalileo.it/leonardo/foglio/index.html?num=ATL.0095.1&lang=en). These documents include inspirational manuscript eyewitness findings by Anthony Grafton (A.5) and Liz Broadwell (A.9, A.18) not previously linked to Leonardo. Documents identified by my archival research previously uncited in connection with Leonardo include further images of his subject

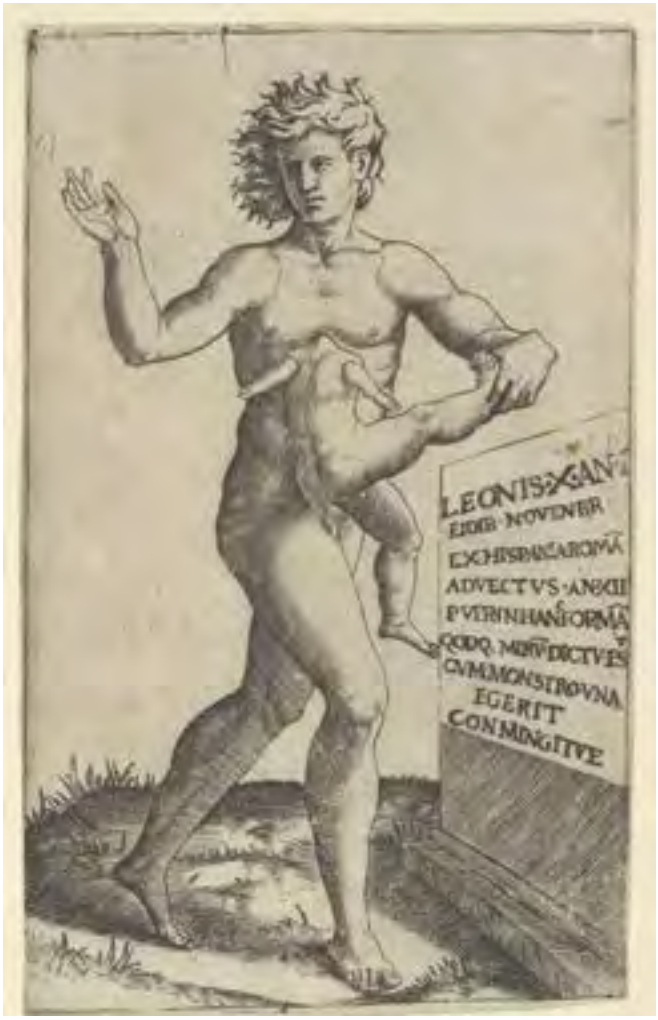

Figure 4.5: (A.10). Marcantonio Raimondi (*c.*1480–1534), *Parasitic conjoined twins* [here identified as Jacques Floquet and dated to November 1513], print, inscribed: "Leonis X an. I [=1513] eidib[us] novembr[is] ex Hispania Roma[m] advectvs. An. XII pver in hanc forma[m] q[u]odq[ue] mirv[m] dictv est cvm monstro vna egerit conmingitve" (Leo X, Year 1 [=1513], November. *A twelve-year-old boy with a body like this was brought from Spain to Rome. What a wonder! It is said that he and the monster void in unison*), 11.9 × 7.3 cm. London, British Museum BM 1854,0513.42 (*A deformed young man, nude, with a headless young child's body attached by the neck to the chest of the young man, in the place of arms, the child has a large finger at either side of his torso*, 1510–27). (© The Trustees of the British Museum. Shared under a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International (CC BY-NC-SA 4.0) licence); Further impressions: Vienna, Albertina DG1971424, *Junger Mann mit zwei Körpern*; New York, Metropolitan Museum 49.97.154, *A naked youth holding in left hand a deformed child, c.*1500–34).

(Figs. 4.5 and 4.6), sightings in Spain, Italy, Germany, France and Switzerland (A.3, A.16, A.19–A.22) and Sanudo's reports and crucial eyewitness Venetian encounter (A.1, A.4, A.15). My study of Leonardo's drawing (Codex Atlanticus f.48r) revisits both publications discussing it in any detail

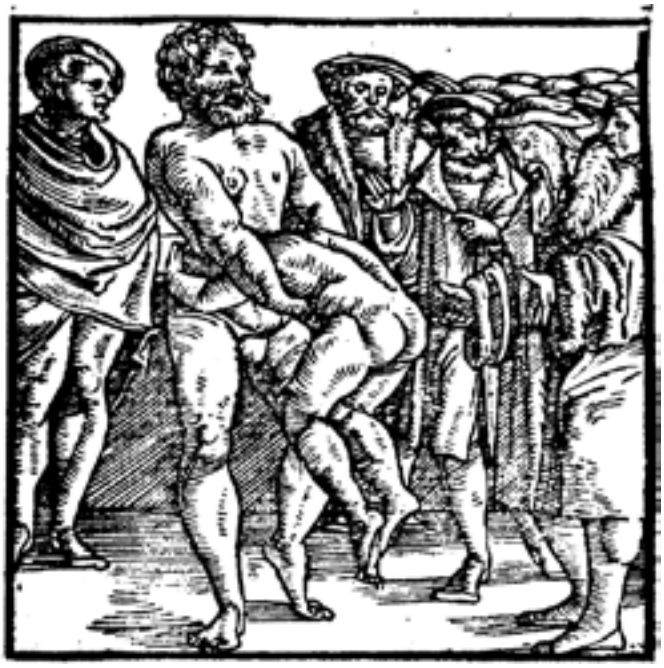

Figure 4.6: (A.22). Anon, *A man came from Savoy* [here identified as Jacques Floquet], woodcut (Stumpf, 1554, fols.262v–263r, 1519). (Image credit: image in the public domain)

(Belloni, 1954; Ciseri, 2014), reconsiders their enquiries and raises new questions. I ask whether its degree of medical feasibility can be assessed and review the performative contribution of Leonardo's subject and medical implications of his possible successful conjoinment separation. Can his biographical details and career trajectory be identified more precisely? Finally, I reinterrogate Leonardo's sources and circumstances. Was Leonardo's drawing (Codex Atlanticus f.48r), as previously suggested, produced in Florence in 1513 and solely from life? Can potential visual sources be identified? And what can we deduce from its context as a *marginalium* to a large sheet of Leonardo's unrelated scientific notes and sketches?

The anatomical feasibility of Leonardo's depiction of headless parasitic twinning (Codex Atlanticus f.48r) is confirmed by modern medicine. In this congenital non-genetic anatomical condition, an independently unviable second body (the parasite) grows out of an otherwise complete and healthy body (the autosite). In certain exceptional cases, atypical bodies were less a disability than

a passport to professional performing careers. Renaissance rulers aspired to take humans who were profoundly anatomically atypical from birth under their personal protection. Conjoined twins, like dwarfs, giants or those with hypertrichosis, were highly valued in the aristocratic gifts-for-patronage exchange economy (Katritzky, 2014). Increasingly from the sixteenth century, performers with exceptional anatomies supplemented, even replaced, court service with commercial touring. Since 1500, several dozen parasitic conjoined twins, mostly male, of European, Asian and African ethnicity, have survived to adulthood as professional performers, including Shackshoone in seventeenth-century London and Antonio Martinelli in eighteenth-century Europe (Katritzky, 2021; Katritzky, 2024). Some specialists refer to 10 or more sixteenth-century sets of headless parasitic conjoined twins (Gidon, 1936); even "numerous examples of traveling, adult conjoined parasitic twins in the sixteenth and seventeenth centuries" (Bearden, 2019, 231). My own research confirms only two sets of adult performing, headless, parasitic, conjoined twins in sixteenth-century Europe: Leonardo's subject, here named as Jacques Floquet (A.1; A.18) and the German Hans Kaltenbrunn. Anatomically similar, chronologically overlapping and both operating as transnational itinerant performers, they are often confused in early modern wonder books. This consideration of Floquet is the first to contextualize him within a broad overview of documentation also relating to Kaltenbrunn (A.1–A.38).

Eye-witness reports of Floquet between 1513 and 1519 amply support each other's descriptions of his adolescent activities and double body. Less clearly documented are the destinations and length of his adult itinerary, or his alleged radical anatomical modification from double- to single-bodied, alluded to by Boaistuau. His illustrated account of an unidentified adult male exhibiting his parasitic twin in and beyond Paris in the 1530s unusually names several eyewitnesses (A.25). Boaistuau claims that he commissioned the double-bodied performer's portrait in Valence while studying law with Jean de Coras (1515–72), who taught at the University of Valence for several years from the mid-1540s (A.26); his accompanying woodcut, published in 1560, is iconographically close to Stumpf's woodcut, published six years earlier (Fig. 4.6, A.22). According to Boaistuau, his own publisher, the University of Paris printer Jean Longis, who knew this double-bodied man from Paris, questioned him on the startling anatomical change he noticed on their re-encounter in nearby Montlhéry "devoid of the monster" (A.27). Other known medieval and early modern separation attempts all unsuccessfully followed the death of one conjoined twin. The sensationally early live separation indicated by Boaistuau is noted by Bearden (2019, p.232) and discussed in Bates's thesis (2002), but not its published version (2005). Identifying a separation of 1689 as "the only example of this procedure in the early modem period", and despite the unusually bulky parasite depicted by Stumpf and Boaistuau, Bates speculates: "Perhaps a small parasite could have been removed surgically (by a brother who had earned enough to retire?)" (2002, pp.134, 156). By the eighteenth century, when invasive physical examination was an established commercial routine of conjoined twins, the professional performer Antonio Martinelli supported the weight of his parasitic twin in a custom designed harness (Katritzky, 2021, p.208). Around 1580, Montaigne (1842, p.330) viewed a live fourteen-month-old infant with a parasitic conjoined twin, which three adults "carried about to get money by shewing it". His account highlights the constant wear and tear to which the routine probing of paying spectators subjected such twins' fragile site

of conjunction: "the juncture and thickness where they were conjoined was not above four fingers, or thereabouts, so that if you thrust up the imperfect child, you might see the navel of the other below it". Could decades of itinerant performance, involving transporting, twisting and showing Floquet's bulky, unviable parasite, eventually have degraded its anatomical link sufficiently to initiate separation? How medically successful was this radical bodily modification? And, marking as it did the termination of a lucrative performing career squarely based his atypical body, was it chosen or involuntary?

Having considered Floquet's body, it is time to review his performing career. Many of the 38 early modern texts and images relating to live sixteenth-century parasitic conjoined twins summarized in the **Appendix** (A.1–A.38) have not previously been linked to Leonardo's subject. Belloni (1954) discusses potential identification of Leonardo's boy in five documents relating to Leonardo's portrait sketch. They are illustrated reports by the Sicilian poet Giovan Francesco Vitale (A.12), French humanist Pierre Boaistuau (A.25–27) and German natural wonder chronicler Lycosthenes (A.14), and unillustrated accounts by the Florentines Antonio Benivieni (A.2) and Marcello Virgilio Adriani (A.6). Pedretti (1978, p.42) makes the connection with the Florentine apothecary Luca Landucci's widely cited eye-witness description of teenage male parasitic twins in Florence in October 1513 (A.7). Briefly noting Leonardo's drawing in her consideration of Marcantonio's print, Culotta (2024) contributes Tedallini's diary entry, confirming the boy's late October 1513 Rome arrival (A.8, A.10). For the first time overviewed together and considered with the previously unidentified diary entries by Sanudo discussed below and other documents here identified, this extensive textual and visual evidence valuably amends and expands Ciseri's itinerary. Drawing on all Belloni's documents, he locates Leonardo's subject as a baby in Florence, boy in Florence and Rome and adult in France and Switzerland (2014, pp.104–5). The new documents exclude identification of Leonardo's boy with two cases documented by Benivieni (A.2) and Lycosthenes (A.14), confirm his name as Jacques Floquet and provide his place and date of birth as Dreux, France in 1500 (A.1, A.17). Stays in Florence (A.7) and Rome in 1513 (A.8, A.12) and a return to France in the 1530s (A.25–27) can now be augmented with further sightings in Rome (A.9, A.13), earlier indications of a Spanish pilgrimage (A.3) and possible stay in Ferrara (A.4, A.5), the uniquely informatively documented Venice tour of 1515 (A.15) and, during the period 1515–19, possible visits to Bologna, Strasbourg, Geneva, Augsburg, Poitiers, Basel, Savoy and Zürich (A.16–A.22).

Although the Venetian diarist Marin Sanudo's account of the "Ravenna monster" (1886, XIV, col.200: 22 March 1512) is well-known, his uniquely informative records of Floquet (A.1, A.4, A.15) are uncited with reference to either Leonardo or Floquet himself; noted only in connection with Sanudo's own monster accounts, prognostication and Venetian hospitality infrastructure (A.15). Sanudo's diary entry for March 1514 paraphrases lengthy commentary on the significance as political portents of several current monsters in a recent letter by Francesco Bonafede, then a professor of medicine at the University of Padua. Its description of 'a monster from Spain' (A.4) recalls not eyewitness examination but an image, almost certainly Fig. 4.5:

> *Ésta visto ancora a Ferara uno desegno de uno mostro vien di Spagna, al presente si ritrova a Roma: è uno homo compito, il quale ha in pecto una creatura de la qual vedese le gambe, le braze, la schena fora del pecto et la testa dentro; et quando lui va del corpo, ancora la creatura li va ad un medesimo tempo. Dicesi de qui, de li esser nasuto*

una creatura mezo can e mezo homo, et afermasi per certo; et perchè de le cosse che rade vole acadeno si sole lo human ingegno miraviliare […] havendo per historie compreso tal portenti ad altri tempi esser acaduli et haver annuntiato cosse grande et maxime tumulti de guerre, occisione, stragie et altri mali.

Also in Ferrara, there is to be seen a drawing of a monster from Spain who is now in Rome: he is a complete man, who has in his chest a creature of which you can see the legs, the arms and the back outside the chest and the head inside, and when he voids his body, the creature also voids at the same time. It is said of him, that he was born of a creature half dog and half human, and it was confirmed for certain. And because the human mind is accustomed to marvel at rare sights [we] understand from history that such portents are untimely and can predict great and terrible upheavals: wars, murder, massacres and other evils.

Although Martignoni (2004), the only specialist to reference both Sanudo's accounts (A.1, A.4, A.15), neither connects them to each other nor to Leonardo, Bonafede's "monster from Spain" is clearly identical with the boy Sanudo himself encountered in Venice a year later, on 5 May 1515 and both are Leonardo's subject (Codex Atlanticus fol.48r).

Sanudo's Venetian eye-witness report (A.1; A.15) offers new information gained by his close physical examination and interviews with the boy:

Ancora in questa matina vidi cossa notanda. Sopra la Piaza di San Marco, in l'hostaria dil Capello, ch'era un monstro, cossa molto horenda, qual è uno garzon di anni 14 nato in le parte di Picardia, chiamato Jacomo, dil 1500, et ben proportionato, lui un poco picolo, qual ha nel stomaco un altra criatura li vien fuora, che non ha se non il busto e membro viril per dove el pissa, et piedi, quali li tien retrati, et di li braze dimostra fuora come do dedi un poco longi; altro non ha, nè ha il buso da drio; et questa cossa si passe di liquor che 'l zovene manza et poi pisa fuora; et parmi molto di novo quando lo vidi. Et lo tocai et parlai col garzon, qual sa italiano, et si pagava uno soldo chi voleva vederlo, et teniva una bandiera in tella fuora con questo monstro dipento suso, l'arma dil Papa et dil Doxe non posta postiza, et letere vulgar et latine, qual dicevano cussì: Ex matrimonio natus est in partibus Normandiæ, in civitate quæ dicitur Drus, 1500. Tutto ozi andò persone a vederlo, adeo vadagnoe ducati assa'. Sono tre che lo menano cussì atorno, spagnoli; uno lo monstra et do asunano li marcheti, et poi triumphano insieme et vanno di terra in terra, et eri capitoe qui, qual vien di ...; e la sera per li Capi di X li fo fato comandamento subito andasse via, e cussì andò.

This morning I also saw something notable. On the Piazza di San Marco, in the Hotel Capello, there was a monster who was very frightening. He was a boy of 14 years old called Jacomo, born in 1500 in the region of Picardy. Well-proportioned although slightly short, he has another creature coming out of his stomach, who has nothing but the torso and virile member with which he pisses, and feet which stay retracted, and his arms protrude out a little. He has nothing else, nor does he have an opening in his back; and this creature fills with liquid that the young man drinks and then pisses it out; and it seemed very new to me when I saw it. And I touched him and spoke to the boy, who speaks Italian, and anyone who wanted to see him paid a penny and he had a banner outside with this monster painted on it, also the arms of the Pope [Leo X] and the Doge [Leonardo Loredan], and an inscription in Italian and Latin which read thus: Ex matrimonia natus est in partibus Normandiæ, in civitate quæ dicitur Drus [Dreux], 1500. All people of leisure went to see him, he would earn a lot of ducats. He is managed by three Spaniards; one shows him and two plan the tours, and they share the profits and travel from region to region and it is understood that he came from [blank space in original MS]. And in the evening the Council of Ten commanded him to leave immediately, and so he went.

Sanudo, co-owner of the Hostaria al Campana, locates Floquet's public exhibition at the Hostaria al Capello on St. Mark's Square, one of several central Venetian inns owned by the Republic, and notes his three Spanish managers. Antonio de Torquemada confirms the boy's earlier presence in Spain. Growing up in León, an important stopover for pilgrims to Santiago di Compostela,

he recalls a pilgrim he met during early childhood. This stranger wore "a long garment downe to his feet open before, which in giving him some little almes he opened wide, & discovered a child, whose head to our seeming was set in the mouth of his stomack or a very little higher, his whole necke being out, from whence downeward his body was fully perfected […] so that there was in one man two bodies" (A.3). 1514, the date given for this encounter by Torquemada's translator, Lewes Lewkenor, is incompatible with the itinerary suggested by my research. Torquemada's own more tentative dating, to around 1513 or 1514, allows Floquet's Spanish pilgrimage to be located immediately prior to his Rome visit, amply supporting Italian commentators' Spanish references.

Encouraged by noble, medical and public patronage and the frenzied interest raised by souvenir images, human conjoinment contributed significantly to the increasing professionalization of performance culture. Showmen travelled between courts and fairgrounds, promoting the theatricalized display of live atypically-bodied performers and postmortem specimens. Sanudo provides rare early sixteenth-century insights into this commodification, confirming that although cut short by the Council of Ten, the boy's Venetian tour was financially successful. Invaluably, Sanudo establishes the date, place of birth and, in conjunction with Liz Broadwell's findings (A.18), name of Leonardo's subject as 1500 in Dreux, on the borders of Picardy and Normandy, named Jacques Floquet. Unaware of this biographical information and assuming their known chronology and anatomy did not contradict the final case study of Benivieni's posthumously published medical observations, defined by Ciseri (2009, p.254) as the "first modern treatise on pathological anatomy", Belloni and Ciseri identified Leonardo's subject with unweaned male twins being shown around Florence for money by their Milanese mother, Alexandra (A.2). Sanudo's authoritative eyewitness account (A.15) now definitively rules out this widely accepted identification.

Sanudo's report of these parasitic twins' shared anatomy and bodily functions reflects the heightened interest surrounding the atypically bodied at the time Leonardo and Dürer produced their conjoined twin drawings. Briefer comments by the physician Georg Hieronymus Welsch confirm that he too physically examined this boy. His forty-sixth medical case study vividly recalls his eyewitness encounter with an unnamed travelling performer, evidently Floquet, in Augsburg in 1516 (A.19):

> 1516, die X Augusti juvenis gallus XIIX annorum Augustæ vindelicorum spectandum se praebuit, cujus sinistro lateri thoracis tumor adnatus erat infanti simillimus, duobus cruribus & pedibus. duabusque natibus, sed sine ullo ani vestigio, pene satis magno, qui diitis compressus urinam fundebat: ventre etiam manifeste conspicuo, ex quo duo veluti brachiorum simulacra spithamae longitudine dependebant pollicem crassa.
>
> On 10 August 1516, a young Frenchman of eighteen years of age presented himself to the spectators of Augsburg. On the left side of his chest was attached a tumor very similar to an infant, with two legs and feet and two buttocks, without any trace of an anus but with a penis of sufficient size that, when compressed, it poured out urine. His belly was also plainly visible, from which hung two arms looking like long, thick thumbs.

Images relating to Floquet, including several previously unknown in this context, fall into two iconographical distinct groups: youthful images (Codex Atlanticus fol.48r; Fig 4.5; A.10–12, A.17) and adult images (Fig. 4.7; A.22, A.25, A.26). Above, I suggest as the probable primary visual precedent for the adult images Stumpf's woodcut of 1554 (Fig. 4.6), perhaps based on a lost broadsheet

Many wonder book authors draw directly or indirectly on this influential depiction (Fig. 4.6)

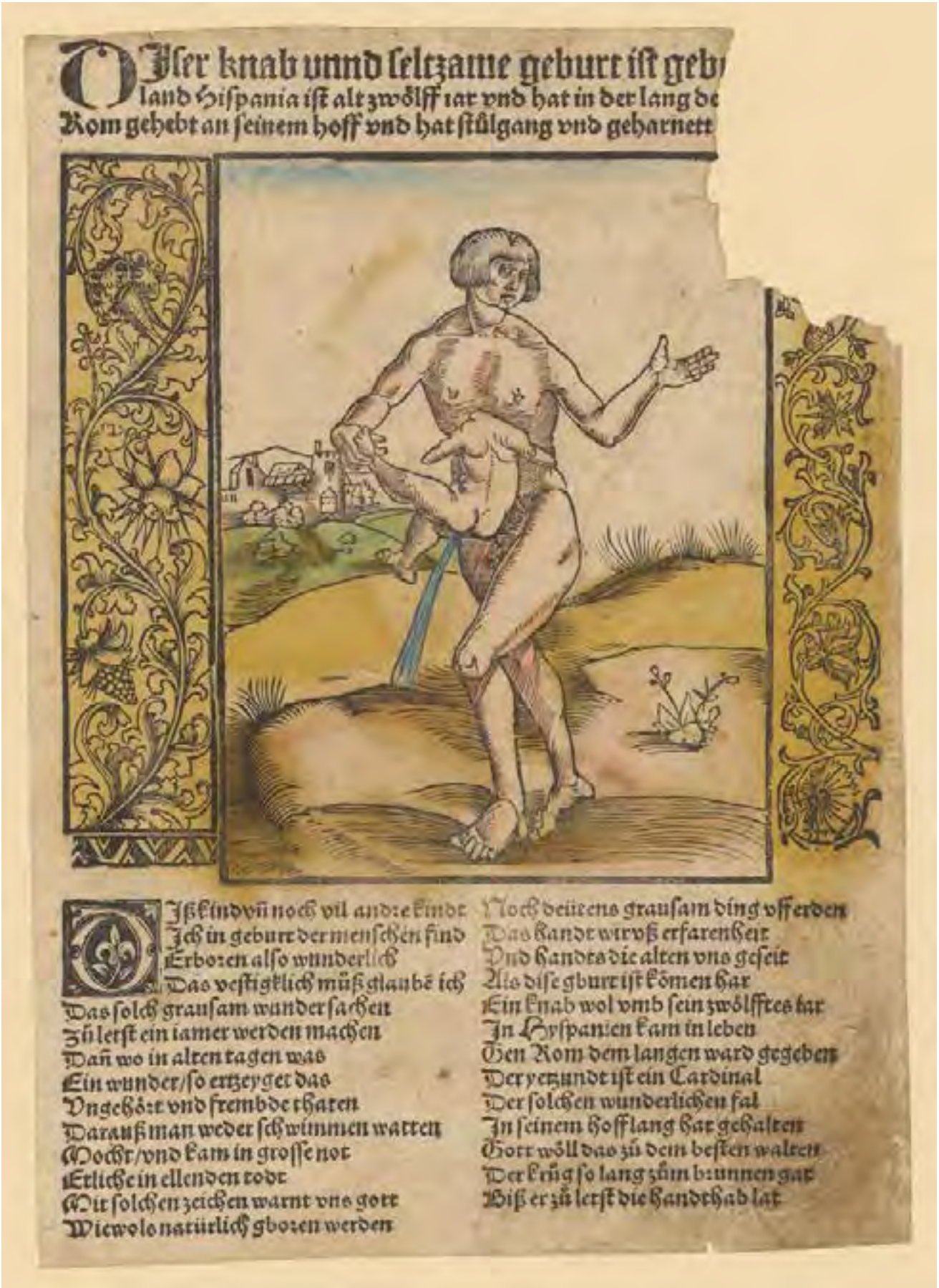

Figure 4.7: (A.17). Matthias Hüpffuff (fl.1497–1520, printer, Strasbourg), *Diser knab unnd seltzame geburt ist geb[oren im] land Hispania ist alt zwölff iar und hat in der lang de[r Papst zu] Rom gelebt an seinem hoff und hat stülgang und geharnett (This boy and strange birth was born in Spain and is twelve years old and for a long time was called to the Pope's court in Rome and can pass stools and urinate)*, woodcut broadsheet depicting a youth here identified as Jacques Floquet, c.1515, 145 x 109. Zurich, Zentralbibliothek PAS II I/9. (Image credit: image in the public domain)

(see A.22; A.25–27). It shows a stocky, bearded, mature man, here identified as Floquet, then aged around 20 years, in Zurich around 1519 or 1520, supporting a parasitic twin so bulky that his feet would otherwise drag on the ground. Turning to youthful images, Leonardo's drawing (Codex Atlanticus f.48r) is undated. The only dated youthful image is the woodcut frontispiece Vitale commissioned for his epic poem *Teratorizion*, inspired, as recorded in his dated dedication of January 1513 (=1514), by his own eye-witness experience and published in Rome in 1514 (A.12).

The museum dating of Fig. 4.7 to around 1515, uninformed by documents newly presented here recording Floquet north of the Alps by 1516 (A.19–20), is broadly confirmed by them. The source of its appropriately youthful portrait is surely a fourth early image, a portrait print (Fig. 4.5) by Marcantonio Raimondi, who served as a papal court artist to Pope Leo X. Born Giovanni di Lorenzo de' Medici (1475–1521), this second son of Lorenzo il Magnifico became a cardinal in 1489 and succeeded Pope Julius II in March 1513. Previous datings of Fig. 4.5, between 1513 and 1534 (Culotta, 2024, p.17) can now be informed by Floquet's newly confirmed biographical details. To function effectively as souvenir images for eyewitness spectators, Fig. 4.5 and 4.7 required reasonably up-to-date portraits of Floquet, born in 1500. According to my reading, the date in Fig. 4.5's inscription, November 1513, is indicative both of its date of production and its identification as the prior iconographic source for Fig. 4.7 and, *pace* Culotta, Vitale's 1514 frontispiece (A.12). Marcantonio's print depicts the parasitic twin's arms as disproportionately underdeveloped, with thumblike endings but no elbows, hands or fingers; in Leonardo's drawing they appear more normative. Such discrepancies reinforce the impression that while certain iconographic parallels between Leonardo's drawing (Codex Atlanticus fol.48r) and Marcantonio's print (Fig. 4.5) suggest that the print pre-dates the drawing and was known to Leonardo, his drawing predominantly reflects fleeting eyewitness recollection, not mechanical copying or posed life portraiture.

Pressed by Belloni (1954, p.166), Leonardo specialist Augusto Marinoni hypothesized that Leonardo's drawing (Codex Atlanticus fol.48r) does not significantly postdate the scientific notes on the folio to which it was added, dated by him to around 1490. With reference to its subject's documented presence in Florence and Rome, Pedretti re-dated Leonardo's drawing to 1513, then to c.1513–1515 (1973, pp.155, 186; 1978, p.42), Ciseri to October 1513, in Florence (2014, p.103). From late 1513 until Giuliano de' Medici's death in March 1516, Leonardo, who left Milan for Rome on 24 September 1513 (probably via Florence), was the salaried employee of this younger brother of Pope Leo X, who from December 1513 provided him with an apartment within the Vatican (Bambach, 2012, pp.26–27). Not made for public consumption, the medical reliability of Leonardo's drawing (Codex Atlanticus fol.48r), while imprecise in some details, suggests a straightforward commitment to eyewitness observation and scientific accuracy (Villa, 1941). Similarly posed to Fig. 4.5, it is an anatomically accurate, if sketchy, *addendum* to a folio recording Leonardo's unrelated explorations of military matters. As such, I believe Leonardo's drawing postdates Marcantonio's print and was sketched from recent memory in Leonardo's Vatican studio, probably around December 1513, while both artist and subject were based at the papal court. To summarize, Leonardo's subject is here identified as Jacques Floquet, born in 1500 in Dreux, France (A.1). Around 1513 he was in

Spain, probably pilgrimaging from León to Santiago di Compostela (A.3). In late October 1513 he toured, possibly via Ferrara (A.4–5), to Florence (A.6–7), then Rome (A.8–10), staying until at least 1514 at the papal court (A.12). He performed in Venice, then Bologna, in May 1515 (A.15–16), then Strasbourg around 1515 (A.17), Geneva, Augsburg and Poitiers in 1516 (A.18–20), Savoy and Switzerland in 1519 (A.22). From the 1530s there were multiple sightings in France, where later eyewitness accounts of varying authority report him as touring into the 1540s before terminating his performing career in the late 1540s with what may have been some form of surgical conjoinment separation (A.25–27).

Conclusion

History is documented by images and artefacts – including surviving traces of ephemeral performance – as well as by texts. Perhaps even more than with texts, chronological, regional, and genre-related practices play a significant role in decoding images as historical documents. Through multiple complex iconographic conventions, they reflect and mediate information their creators have gained as eyewitnesses and/or adapted from earlier visual and/or textual documentation. This reconsideration of the sources, subjects, performativity and anatomies of two drawings by Leonardo and Dürer complicates current perceptions of their conjoinment images. It indicates a less differentiated pattern of sources influencing the two artists than that suggested by non-comparative studies of Fig. 4.1 and Codex Atlanticus fol.48r. The anatomy of the central arm depicted by Dürer is probably apocryphal; Leonardo's drawing primarily reflects eyewitness observation. However, less likely than that Fig. 4.1 was drawn solely from images and Codex Atlanticus fol.48r solely from life, I would suggest, is that Dürer supplemented his knowledge of the Mandelin-Engelhartin twins from the commemorative broadsheet woodcuts with textual reports from friends or associates and that Marcantonio's portrait print (Fig. 4.5) informed Leonardo's eyewitness observations of Floquet. 'Rarely do early modern scholars acknowledge that many of the monsters depicted in wonder books were real people with disabilities' (Bearden, 2019, 181). Atypically-bodied humans are routinely othered, unwillingly theatricalized, medicalized, financially exploited, anonymized, even dehumanized; their indispensable contribution to our cultural heritage peripheralized or disrespectfully dismissed. By here situating the Mandelin-Engelhartin twins, shown throughout their short lives for gain by their parents, as performers – albeit passive performers – and, for the first time, establishing Leonardo's subject as a named historical performer, this study addresses some of these ingrained ethical challenges. It expands the known biographical details, performative practice and anatomy of Leonardo's subject (**Appendix**: A.1–A.38). Here, he is identified as Jacques Floquet (A.1, A.18), born in 1500 in Dreux, France (A.1) and rehabilitated not as "a tormented being whom [carnies] would cart from piazza to piazza until he died" (Grafton, 2004, 3), but as a notable French performer whose transnational career, built on astute commercialization of his spectacularly atypical body by his professional Spanish management team, represents a groundbreaking theatre-historical breakthrough. This first interdisciplinary historical recovery of Floquet's identity and career offers new perspectives on Leonardo's drawing, on sixteenth-century advances in managing professional performing and on early modern visual approaches to the human body.

Considered individually, depictions of the atypically bodied valuably record specific historical subjects and artists. Regarded as a

whole, the sheer quantity of such Renaissance images reflects significant cultural shifts. As the sixteenth-century moved towards a deeper medical understanding of the human body in all its variations, superstitious attitudes to natural wonders increasingly competed with scientific scrutiny. Strategies for communicating popular medical understanding through the visual and performative arts were refined. Theatrical spaces were intensively developed as sites for the commercial display of atypically-bodied humans, bringing together multiple economic, medical, performative and visual practices. Renaissance visual and theatrical culture challenged and recalibrated perceptions of typical embodiment. Interdisciplinary study of pre-photographic images of the atypically bodied, drawing on the histories of art, medicine and theatre, can yield important information for our understanding of itinerant performance, for key artistic practices on the eve of the so-called 'iconographic turn' in European science and for natural manifestations and progressions of human bodily configurations increasingly eliminated by modern medicine. Visual material relating to othered bodies indicates the close links, in the age before photography, between the study of anatomy and medical conditions, the display of the atypically bodied for public entertainment, and the development of art as a visualised discourse for defining the parameters of idealised, typical and othered bodies. While often strikingly less dominated by the fashionable stylistic influences shaping depictions of idealized bodies, atypical imagery developed non-naturalistic iconographic conventions. Artists' strong concern to memorialize the strangeness and theatricality of such wonders of nature with anatomical as well as historical accuracy could not prevent frequent depiction of implausible anatomical configurations. Medicine, theatre and art informed each other to contribute towards developing ideas on which types of human anatomy merited exclusion from the pantheon of bodily normativity. These interdisciplinary concerns frame my comparative approach to Dürer and Leonardo's conjoined twin drawings. As the pre-eminent contributors to the Renaissance quest to establish a reliable basis for visually representing the natural world, they mutually inspired each other's explorations of its most complex microcosm, the human body. Their conjoined twin drawings suggest both artists' acute awareness of the extent to which visual and theatrical representations of exceptional bodies contribute towards containing, normalizing, even defining perceptions of typical anatomies.

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(https://teche.museogalileo.it/leonardo/foglio/index.html?num=ATL.0095.1&lang=en); Oxford, Ashmolean Museum (Fig. 4.1); Zurich, Zentralbibliothek (Fig. 4.7).

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