Conjoined Twins in the 16th Century

Alan W. Bates

Department of Morbid Anatomy, The Royal London Hospital, UK

The major morphological types of conjoined twins had all been described by 1600, often in publications that included details of the time and place of birth, morphology, outcome, behaviour, and, on occasion, autopsy findings. These descriptions differ from modern reports in emphasizing the twins' supposed "meaning" rather than their cause. Understanding the symbolic aspects of these accounts is important for their interpretation. This article summarizes the records of 53 cases of conjoined twins born in 16th-century Europe and examines the cultural background of these accounts and the use of the pediatric autopsy as a means of investigating the pathology of twins. Studies of conjoined twins were central to the debate over whether the possession of separate hearts was a prerequisite for individuality.

Descriptions of human birth defects, especially conjoined twins, are to be found in a variety of printed books and popular literature from 16th-century Europe. There were three principal types of literature on conjoined twins: scholarly books, written by medical or natural philosophical authors, so-called "wonder" books, which were compilations of strange or unusual phenomena, and popular literature such as ballads and advertisements. This literature was produced for a variety of reasons, and often used conjoined twins symbolically to convey a theological or moralising message (Bates, 2000).

The first books to contain material on conjoined twins gathered after 1500 were collections of prodigies — unusual events sometimes interpreted as auguries of the future. Conrad Lycosthenes' (Conrad Wolffhart, 1518–1561) *Prodigiorum ac Ostentorum Chronicon* (1557) brought his earlier edition of Obsequens' tables of prodigies from the classical world up to date. Another compilation, Pierre Boaistuau's *Histoires Prodigieuses* (1560), enjoyed great popularity, passing through 37 editions in 40 years. The works of medical writers such as Caspar Peucer (1525–1602, Professor of Medicine at Wittenburg), Jacob Rueff (1500–1558) and Ambroise Paré (1510–1590) are important sources of material, as are later publications including those of Caspar Bauhin (1560–1624), Fortunio Liceti (1577–1657) and Ulysse Aldrovandi (1522–1605), who republished in book format cases first described in the popular press in the 16th century. Descriptions of conjoined twins and other congenital malformations were often not regarded by contemporaries as credible contributions to knowledge — Paré's work was dismissed as "fit for amusing little children" by the Paris college of physicians (Paré, 1982) — and authors attempted to establish credibility by providing lists of "reliable" witnesses or by citing other written authorities.

The anatomy of conjoined twins was described in some detail. In the 16th and 17th centuries there appears to be no instance of a paediatric autopsy performed to determine the cause of death. Dissection of conjoined twins did, however, take place from 1540 — the earliest example of the perinatal autopsy — and was used to determine which structures were shared in order to address the question of whether conjoined twins were one or two individuals. Apparent inaccuracies, the most consistent being descriptions of conjoined twins of opposite sexes, are discussed in relation to the symbolic meaning assigned to twins.

Methods

A review of the European literature relating to human conjoined twins in the 16th century was undertaken, including medical and non-medical books and popular literature such as broadsides. Later literature on birth defects from this period was also reviewed. Cases were classified, on the basis of contemporary descriptions and illustrations, according to the classification of Spencer (1992). Of the seven major groups, only thoracopagus and omphalopagus were not always separable on the basis of macroscopic appearances: these cases were assigned to a "thoraco/omphalopagus" group. Only references to specific cases were included; general references to twinning were omitted. All cases identified were included. References are given to the most available texts; place-names have been modernised.

Results

Fifty-three cases of human conjoined twins born between 1501 and 1600 were identified. These are summarized in Table 1. Three cases could not be unequivocally assigned to a morphological category and these are considered to be of "uncertain classification" and are discussed below. Of the remainder, 2 (4.2%) were craniopagus type, 14 (29%) thoracopagus or omphalopagus, 8 (17%) cephalopagus, 20 (40%) parapagus, 5 (10%) ischiopagus and one (2.1%) pygopagus. The sex was given in 27 of the 53 case descriptions: 10 were male and 12 female. In addition there were 5 pairs in which one twin was said to be male and the other female. All of the cases had a written description, sometimes brief, and most were illustrated (Figure 1). Autopsies are known to have been performed on nine of the pairs of

Address for correspondence: Alan W. Bates, Department of Morbid Anatomy, The Royal London Hospital, London E1 1BB, U.K. Email: A.Bates@bartsandthelondon.nhs.uk

https://doi.org/10.1375/twin.5.6.521 Published online by Cambridge University Press

Table 1

Conjoined Twins 1501–1600

Year	Place of birth	DOB	Type	Sex	Autopsy	Anatomy	Outcome	Reference
1511	Strasbourg, France	—	Omphalopagus	F	—	Fused from xiphisternum down	—	Holländer, 1921
1511	—	—	Cephalopagus	—	—	Probably tribrachius tetrapus	—	Holländer, 1921
1512	—	—	Parapagus	F	—	Tetrabrachius dipus	—	Holländer, 1921
1514	—	—	Parapagus	—	—	Tribrachius dipus	—	Schott, 1662
1514	Bologna, Italy	Jan	Diprosopus	F	—	—	Died aged 4 days	Schott, 1662
1517	Landshut au der Donau, Bavaria.	—	Parapagus	—	—	Tribrachius dipus	—	Holländer, 1921
1529	Esselingen am Neckar, Germany	9 Jan	Cephalotho-racopagus	M	—	—	—	Paré, 1982
1531	Gossau, near Zürich, Switzerland	26 Aug	Parapagus	—	—	Tribrachius tripus	—	Batman, 1581
1536	Tegernsee, Germany	—	Parapagus	—	—	Tribrachius tripus	—	Batman, 1581
1536	Sicily	30 Aug	?Conjoined triplets	—	—	—	—	Gerlin, 1624
1538	?Germany	—	Parapagus	M	—	Tetrabrachius	Alive aged 30 years	Batman, 1581
1538	?Bavaria	—	?Parapagus	F	—		Alive aged 25 years	Batman, 1581
1540	Hessen, Germany	—	Diprosopus	—	—	—	—	Batman, 1581
1540	Zarzara, Italy	19 Mar	Cephalothor-acopagus	M	Yes	Janiceps asymmetros: 2 livers, 2 spleens, one heart	Liveborn — neonatal death	Fenton, 1569
1541	Freiburg, Germany	19 Feb	Thoraco/ omphalopagus	—	—	—	—	Peucer, 1553
1541	Wittenburg, Germany	—	Omphalopagus	—	—	—	—	Batman, 1581
1543	Schaffhausen, Switzerland	22 Feb	Thoracopagus	F	—	—	—	Rueff, 1554
1543	Rinach nr. Basel	—	Parapagus	M	—	Tetrabrachius dipus	—	Batman, 1581
1544	Milan, Italy	Jan	Parapagus	F	Yes	Tetrabrachius dipus: 2 uteri, 2 livers, one heart, intestine double except rectum	Died due to birth trauma	Fenton, 1569
1544	Heidelberg, Germany	—	Thoracopagus	M	Yes	Single heart	Died aged 36 hours	Batman, 1581
1545	Achen, Saxony	—	Pygopagus	—	—	Posterolateral union	—	Batman, 1581
1546	Louvaine	25 Apr	Cephalopagus	—	—	—	—	Batman, 1581
1546	Paris	—	Thoracopagus	—	Yes	One heart	—	Paré, 1982
1547	Löwen, Germany	7 Apr	Cephalopagus	M+F	Yes	Tetrabrachius tetrapus: 2 hearts	—	Blickstein, 2000
1550	Modena, Italy	—	Diprosopus	M	—	—	Neonatal Death	Daston & Park, 1998
1550	Sweden	—	Thoracopagus	—	—	—	—	Batman, 1581
1552	Middleton Stony, England	3 Aug	Thoracopagus	M+F	—	—	Died aged 17/18 days	Anon, 1552
1552	Oxford, England	Aug	Ischiopagus	F	—	Tripus	Died aged 15 days	Rueff, 1554

https://doi.org/10.1375/twin.5.6.521 Published online by Cambridge University Press

Table 1 continued

Year	Place of birth	DOB	Type	Sex	Autopsy	Anatomy	Outcome	Reference
1552	Witzenhausen, Hesse, Germany	9 Jan	Parapagus	—	—	Dibrachius dipus	—	Schenck, 1644
1553	Hispaniola	—	Omphalopagus	F	Yes	Fused livers	—	Jimenez, 1978
1553	Thüringen	20 Mar	Thoraco/ omphalopagus	—	—	—	Died aged 2 hours	Batman, 1581
1553	Meissen, Germany	19 Jun	Parapagus	—	—	Dibrachius dipus	—	Batman, 1581
1555	Oxford, England	—	Parapagus	—	—	Dibrachius dipus	Stillbirth	Schott, 1662
1555	Geneva	—	Cephalotho-racopagus	M+F	—	—	Intra—uterine death	Fenton, 1569
1556	Leipzig, Germany	—	Thoraco/ omphalopagus	—	—	—	—	Batman, 1581
1560	Germany	21 Apr	Cephalothoracopagus	—	—	—	—	Holländer, 1921
1563	?Straßburg	—	Craniopagus	M	—	—	—	Holländer, 1921
1565	Stony Stratford, England	—	Cephalothoracopagus	F	—	Janiceps asymmetros	—	Anon, 1565b
1566	Swanburne, England	—	Thoracopagus	M+F	—	—	Died aged 30 minutes	Mellys, 1566
1567	Flanders	—	Parapagus	F	—	Tetrabrachius dipus	—	Batman, 1581
1569	Tours	—	Craniopagus	—	Yes	—	Neonatal death	Paré, 1982
1570	Germany	—	Ischiopagus	—	—	Tripus	—	Liceti, 1665
1570	Paris	20 Jul	Ischiopagus	M+F	—	—	Livebirth	Anon, 1570
1572	Viabon, France	—	Ischiopagus	F	—	Tripus	Died aged < 7 days	Paré, 1982
1572	Pont de Cé, France	10 Jul	Thoracopagus	—	Yes	Single heart, four— lobed liver	Died aged 30 minutes	Liceti, 1665
1575	—	—	Ischiopagus	—	—	Tetrapus	—	Schott, 1662
1576	Taunton, England	—	Cephalopagus	M	—	—	—	Anon, 1576
1576	?Zurich	—	?Thoraco/ omphalopagus	—	—	—	—	Holländer, 1921
1579	Lutsolof, Germany	—	Parapagus	—	—	Dibrachius dipus	Died aged 3 days	Batman, 1581
1580	Aberwick, England	5 Jan	Diprosopus	M	—	—	—	Anon, 1580
1597	Württemberg, Germany	29 May	Parapagus	—	Yes	Dibrachius dipus: double heart, lungs and liver; single stomach and intestine	Stillbirth	Schott, 1662
1598	Tortona, Italy	26 Oct	Thoraco/omphalopagus	?F	—	—	—	Aldrovandi, 1642
1599	Brussels	—	Parapagus	M	—	Dibrachius dipus	Stillbirth	Aldrovandi, 1642

twins; in the remaining cases autopsy was not mentioned and is assumed not to have been performed. This gives an autopsy rate of 17%.

Cases of Uncertain Classification

In three cases the description was not sufficient to identify with reasonable certainty the type of twinning. A case born in Sicily in 1536 was described thus: "…an infant having three heads, three chests, six arms, and the same number of feet was born… this monster had three souls in its breast, as the three hearts suggested" (Gerlin, 1624, p. 8, my translation). There is no similar report of conjoined triplets in later literature (see the remarks of Gould & Pyle, 1937, p. 167). Descriptions of human tricephalus are extremely rare, and coincident conjoined and parasitic twins account for some cases (Spencer, 2000a). Two cases of parapagus twins who lived to adulthood were described in 1538. Though dicephalus is compatible with this life expectancy (Bondeson, 2001), survival into adulthood is normally associated with tribrachius or tetrabrachius rather than dicephalics with only two upper limbs. The anatomy of the Bavarian case was not recorded in detail and the exact mode of union is unclear, but the description of one head

https://doi.org/10.1375/twin.5.6.521 Published online by Cambridge University Press

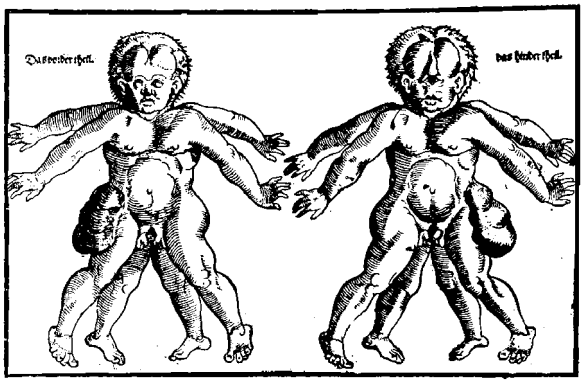

Figure 1

Cephalothoracopagus janiceps asymmetros twins depicted from anterior and posterior aspects, showing the cyclopic face. From a broadside published in Germany in 1578.

Figure 2

Cephalothoracopagus janiceps twins delivered after embryotomy; "he was so huge above order, that it was impossible to draw him whole from the bellie of his mother" (Fenton 1569, fol. 142v). The twin on the left is depicted with female genitalia and that on the right with male genitalia, and they are described in the text as "utriusque generis".

as "very deformed" raises the possibility of craniopagus parasiticus. Possible thoraco/omphalopagus twins from 1576 were illustrated with two umbilici and again the exact mode of union is uncertain.

Discussion

Conjoined twin pregnancies often ended in intrapartum death which was probably asphyxial or traumatic in origin. Wilson (1995) has described early modern techniques for dealing with difficult births (in England): craniotomy and embryotomy were performed only if the baby had died in utero. Midwives were generally forbidden to carry out embryotomy even on a dead child: only surgeons could perform the procedure. Cesarian section was not in general use at his time, and was never used if the mother was living. Evidence from early modern descriptions of human congenital malformations suggests that embryotomy was uncommon, a single example having been identified between 1500 and 1700, when embryotomy was performed on conjoined twins of cephalothoracopagus type in 1555. The amputations were faithfully shown in the accompanying drawing (Figure 2), though by convention the twins were depicted as if alive, and somewhat older than their years.

One explanation for the publication of many accounts of conjoined twins was the high level of public interest in seeing them. Detailed descriptions of the place of birth in popular publications encouraged people to go to look at the twins for themselves. This was facilitated by the use of embalming, so that the twins could be exhibited long after their death. Even a stillborn child could be a source of income, and in 1583 a child with "two heads and two backbones" was brought to a fair in Shrewsbury in its coffin (Cressy, 2000). The motive for exhibition was financial, however the process was not necessarily a distasteful fairground show, but was intended to be instructional (Bates, 2000): at a convent in Modena each nun paid to see a diprosopus twin and one recorded in her diary that she found it "very beautiful to see" (cited by Daston & Park, 1998, p. 191). A pair of cephalothoracopagus janiceps twins, almost certainly dead, was brought up to London in 1565, "wheare it was seene by dyvers worshipfull men and women of the cytie. And also of the Countrey" (Anon., 1565b). A ballad describing the conjoined twins Martha and Mary announced that: "This monster is intended speedily to be brought to London", where their father had "twenty pounds given him the first day, by persons of Quality" (Anon., 1664, cited by Rollins, 1927, p. 145).

Only a few conjoined twins lived to adulthood. Those that did so almost certainly lived off the income earned from public exhibition, and therefore have left documentary evidence. Parapagus twins "with two heads and four shoulders", who arrived in Basel in 1538 made a living by exhibiting themselves, and commentators emphasised their similarity of behaviour:

> Their appetite to meate was alike, their hunger alike, their voyce very like, they had one desire to the same wife, the whiche he had, and had the same waye of voyding excrements, and he was thirtie yeares old when he came to Basil (Batman, 1581, p. 330).

A similar case — probably craniopagus parasiticus rather than a true conjoined twin — was to be seen in Bavaria at about the same time:

> A woman of five and twentie yeares of age with two heades, one of which notwithstanding was very deformed: when she got her living by begging from doore to dore, she was commaunded (by reason of women with child) to departe out of the Countrey, in giving her money to paye hir charges (Batman, 1581, p. 330).

Belief in the theory of maternal impressions — that a child may resemble a striking person or image seen by the pregnant mother — prompted the townspeople to pay her to move on.

https://doi.org/10.1375/twin.5.6.521 Published online by Cambridge University Press

Autopsy

In 1533 a pair of omphalopagus conjoined twins was born on Hispaniola (Jimenez, 1978). They lived for only eight days and were baptised Johanna and Melchiora. The priest who baptised them had given conditional baptism to the second twin (a formula used when it is not known whether a person has previously been baptised), an ingenious solution which nevertheless left doubts in the minds of the parents: were the twins one child or two? To help resolve the problem they agreed to an autopsy, the first in the New World. The autopsy was conducted in a formal manner, reminiscent of the anatomy schools of the European universities, the doctors supervising the procedure while delegating the manual task of cutting to the surgeon: "Joan Camacho who held a Bachelor's Degree and was an excellent surgeon made an incision with a knife in the presence of two doctors of medicine: Hernando de Sepulveda and Rodrigo Navarro". The girls' father was asked whether the twins had shown any differences in behaviour when alive, as: "[t]his will prove, even without having them cut open, that they were two separate persons and two souls". Different behaviour, even in infants, was regarded to be at least as useful as anatomy in determining individuality. Anatomical solutions were hampered by differing opinions as to the seat of the soul. Almost every major organ had been proposed, with the most favored options being either the ventricles of the heart or the brain, but the liver was another possibility. The prosectors took care to describe a fissure separating the fused livers (the only shared organ) into two parts, so that neither twin was wanting any major organ. After the autopsy, the parents were told that Johanna and Melchiora were two when they "passed from this life to celestial glory where, God willing, we shall see them" (Oviedo, 1542, cited by Peña Chavarría & Shipley, 1924).

Whether conjoined twins were treated as one or two individuals was determined in part by their mode of union. A diprosopus twin named Mary was baptised once by Cardinal de Grassis in 1514 (Schott, 1662), which shows that diprosopus twins were seen as a single child. Most other types, such as the thoracopagus twins John and Joanne born at Myddleton stonye in England were baptised separately (Anon, 1552). Two hand-written annotations in the British Library copy of this pamphlet record that one child died at 14 days of age and the other a day later.

Autopsies were used to address the question of the individuality of conjoined twins by showing what organs they shared. Parapagus tetrabrachius dipus twins born in Milan in 1544 died due to birth trauma: the surgeon Gabriel Cuneus made an "anatomy" and found that there were two uteri, duplicated intestines except for the rectum, two livers, and one heart; "the which moveth us to think … that Nature would have created two, saving that by some defect she imperfected the whole" (Fenton 1569, fol. 36). This account gives the usual early modern theoretical interpretation of conjoined twinning, that conjoined twins resulted from the fusion of two fetuses *in utero*, and it was thought that this could occur even if twins were conceived on separate occasions (see Henry Oldenburg's correspondence, Hall and Hall, 1966, vol. II, p. 277). Recent work has shown that human conjoined twins almost certainly do result from secondary union of initially separate embryonic discs (Spencer, 2000a, 2000b).

Early modern theories of conjoined twins arising by fusion were a radical revision of the classical theory of incomplete separation. According to Aristotle the male's contribution to conception was semen and the female's, menstrual blood. The semen imparted form then evaporated; the female provided the substance of the embryo. This theory, like much of Aristotle's natural philosophy, was influential in Mediaeval medicine (Thijssen, 1987). St Albert the Great for example postulated that twins resulted from abundance (*superfluitas*) and division (*divisio*) of matter. Abundance and division of sperm in the uterus caused the birth of twins; incomplete division caused conjoined twins.

Other autopsies of conjoined twins include an example of dicephalus dibrachius dipus from Tubinga in 1597 (Schott, 1662, p. 662) and a pair of male cephalothoracopagus janiceps asymmetros twins that were born dead on 19 March 1540 in Zarzara, Italy, after a gestation of three months. The body was given as a present to one of the King of Spain's lieutenants. At autopsy, two livers, two spleens and one heart were found (Fenton, 1569). A single heart is uncommon in this form of twinning but similar cases have been reported subsequently (Grundfest & Weisenfeld, 1950).

The heart received special consideration because it was classically associated with individuality: Aristotle had written that the presence of two hearts indicated that conjoined twins were two individuals rather than one. A case from Heidelberg in 1544 indicates the difficulty with this thesis. Male thoracopagus twins were baptised John and Jerome and lived a day and a half: "…when they were dead, they found in the belly but one hart" In spite of this finding there was no revision of the opinion formed of the twins when living; they had been treated as two individuals and baptised separately (Batman, 1581, p. 338).

External appearances suggested that these were two children, but scholastic medical theory had apparently shown that they were one, "as Aristotle says" (Paré, 1982, p. 14).

Some 16th-century observers were unsatisfied with the traditional method of determining individuality. The behaviour of conjoined twins appeared to indicate separate personalities for each twin:

> In England, not far from Oxford, we are informed that a certain birth occurred with two heads, four arms and hands, one belly and a single set of female genitals. From one side two feet came out sideways, and from the other side, a single, or more correctly a double foot, having ten digits. At the second hour of the fifteenth day first one then the other died. They had rarely cried. One had a cheerful demeanour, while the other was sleepy and sad (Rueff, 1554, p. 382).

If conjoined twins showed behavioural differences, this was seen as clear evidence that they were two individuals. Jean Riolan, in a thesis published on his appointment as professor of anatomy and botany at the University of Paris, made the same point with regard to a pair of twins born in Paris in 1605 and gave historical examples of other

https://doi.org/10.1375/twin.5.6.521 Published online by Cambridge University Press

conjoined twins that lived long enough to show different personalities (Riolan, 1605).

Conjoined Twins of Opposite Sexes

Conjoined twins described as being of opposite sexes are unlikely to be attributable to inaccurate observation, partly because this does not accord with the morphological accuracy achieved in other aspects of their description. It appears that there were theoretical reasons why observers expected conjoined twins to represent both sexes, and that they were therefore described in this stereotypical way. In an account written in 1655 a midwife described a pair of conjoined twins delivered only three weeks short of term of which one was female and the other a "supposed manchild". Although the second twin did not look male, she attempted to make her account conform to the expectation that the twins must be of different sexes (Richardson, 1665, cited in Woodward, 1974).

A theoretical basis for this lay in the assumption that conjoined twins represented, in a figurative sense, the union of opposites. In the 16th century conjoined twins were part of a larger group of "monstrous" births. This term was not pejorative, nor did it suggest a particular etiology, but it did indicate that these cases attracted attention because they were unusual, or "outside the ordinary course of nature". Some writers regarded even twins that were not conjoined as "monstrous" because they were uncommon. For Pliny the younger, it was simply a question of number: multiple births of quadruplets and above were "monstrous" births (*Natural History,* book 7, chapt. 4). For most observers, more than rarity was required to describe a child as "monstrous": it had to show features that defied normal categorisation (Daston & Park, 1998). Conjoined twins were prototypical examples of "monstrous" births because their status as one or two individuals was ambivalent. Twins, especially conjoined twins, were symbols of ambiguity: two and yet one (Willis, 1975, p. 55). Hermaphrodites, male-female intermediates, were another ambiguous type regarded as monstrous births, as were supposed animal-human hybrids. To describe conjoined twins as hermaphrodites therefore satisfied the requirement for a mixed or uncertain nature that monstrous births were thought to possess. Twin births also transgressed the boundary between animals and humans, since animals frequently give birth to twins: "men who have begotten twins are held to have an intimate connection with animals (who also reproduce by multiple births)" (Douglas, 1975, p. 18).

Illustrations of conjoined twins resembled those found in 16th-century emblem books. The symbolic union of masculine and feminine was familiar from alchemical texts, where it was represented by the hermetic androgyne or rebis. The *Rosarium Philosophorum* of 1550, for example, illustrated the androgyne, the product of the union of sol and luna (sulphur and mercury), as a dicephalic human with one male and one female head, and with both male and female genitalia. This image would have been as familiar as the depictions of conjoined twins of opposite sexes, which were also symbolic representations of the hermaphroditic state.

Illustrations of conjoined twins ranged from detailed engravings to simple sketches (see Holländer, 1921). Some drawings were made from the twins themselves, alive or dead, while others were added to the finished work by artists working from the written description. Sometimes, artists were described working at the scene: "…in addition the painter Gaspar Masserius, who had arrived along with many other people, made a careful pencil drawing of the whole thing" (Liceti, 1634, p. 88). Evidence of artists working from the text alone comes, for example, from the illustration of cephalopagus tribrachius tetrapus from 1511 (Anon., 1511, cited in Holländer, 1921, p. 77) in which the third arm has been located in an impossible position (Figure 3). In the same way, cephalothoracopagus twins which: "had two faire heades well proportioned, and two faces joyned one to an other … and betwene the two heades, he had a thirde heade, whiche exceeded not the length of an eare" were illustrated as parapagus in works by Fenton and Paré (Fenton, 1569, fol. 98v; Paré, 1982, p. 19). Paré (1982) described these twins as possessing both male and female genitalia.

Conjoined twins were usually depicted alive, and standing in a landscape. This was a conventional illustrative format (one thinks of Vesalius's anatomical plates) and cannot be taken to imply that they were liveborn. Anteriorly united twins were often shown symbolically embracing one another (Figure 4) — the text might contain a reference to charity or friendship. *The true description of two monsterous Chyldren Borne at Herne in Kent* (Anon., 1565a) stated that God caused the twins to appear as "examples to repentaunce and correction of manners". The thoracopagus conjoined twins, embracing one another with an appearance of affection, were contrasted with the general lack of charity demonstrated by the author's countrymen. Most of the popular ballad accounts used the birth of twins to make a theological or moralising point — this was the motive for publication — and represented the twins in a stereotyped manner. This does not however imply that the cases are less credible than those described in scholarly works. A list of witnesses was often appended to a ballad sheet, to show "that it is a Trouth and no Fable…" (*The true fourme and shape of a monsterous*

Figure 3

Cephalopagus tribrachius tetrapus: a symbolic representation that depicts the limbs in anatomically impossible locations.

https://doi.org/10.1375/twin.5.6.521 Published online by Cambridge University Press

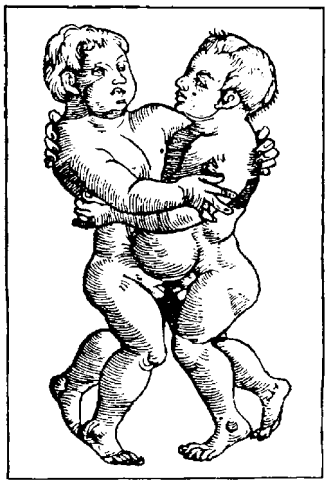

Figure 4

Thoraco/omphalopagus twins born in Germany in 1544.

Chyld, Whiche was borne in Stony Stratforde… (Anon., 1565b) and Praz (1964) has shown that symbolic interpretations were expected to use genuine properties of the thing depicted: "one would, however, be mistaken in thinking that the device-writers were ready to take up any fable; on the contrary they insist upon the exclusion of the fabulous".

Conclusion

By reporting conjoined twins, early modern observers intended to provide material that was intrinsically interesting as well as capable of symbolic interpretation. The dual nature of conjoined twins was emphasised, giving rise to the belief that they combined male and female natures. Both autopsies and behavioural observations were employed to help determine whether various types of conjoined twins were separate individuals. Behavioral differences were considered in conjunction with anatomy, leading to a revision of the classical theory that separate identities were dependent upon unfused hearts.

References

Aldrovandi, U. (1642). *Monstrorum historia. Cum paralipomenis historiæ omnium animalium*. Bononia: N. Tebaldini.

Anonymous. (1552). *Thou shalte understande, Chrysten Reader, that the thyrde daye of August last past, Anno. M.CCCCCLII … in a towne called Myddleton stonye … at the In, called the Sygne of the Egle, there the good wyfe of the same, was deliuered of thys double Chylde, begotten of her late housbande John Kenner*. London.

Anonymous. (1565a). *The true discription of two monsterous Chyldren Borne at Herne in Kent. The .xxvi. daie of Auguste In the yere of Lorde.* M.CCCCC.LXV. London: T. Colwell.

Anonymous. (1565b). *The true fourme and shape of a monsterous Chyld, Whiche was borne in Stony Stratforde, in North Hamptonshire. The yeare of our Lord*, M.CCCCC.LXV. London.

Anonymous. (1570). *L'Androgyn né a Paris, le xxi juillet, M.D.LXX. Illustré des vers latins de Jean Dorat Poëte du Roy Tres-chrestien, contenans l'interpretation de ce monstre. Avec la traduction d'iceux en nostre vulgaire François, dediee à Monseigneur le President l'Archer*. Lyon: Michael Jove.

Anonymous. (1576). *The discription and figure of a monstruous childe borne at Taunton the viij of November 1576*. London: Hugh Jackson.

Anonymous. (1580). *A true report of a straung and monsterous child, born at Aberwick, in the parish of Eglingham, in the county of Northumberland, this fifth of January*. London: Thomas Gosson.

Bates, A.W. (2000). Birth defects described in Elizabethan ballads. *Journal of the Royal Society of Medicine, 93*, 202–207.

Batman, S. (1581). *The Doome warning all men to the judgement*. London: Ralphe Nubery.

Blickstein, I. (2000). The conjoined twins of Löwen. *Twin Research, 3*, 185–188.

Bondeson, J. (2001). Dicephalus conjoined twins: A historical review with emphasis on viability. *Journal of Pediatric Surgery, 36*, 1435–1444.

Cressy, D. (2000). *Travesties and transgressions in Tudor and Stuart England. Tales of discord and dissension*. Oxford: Oxford University Press.

Daston, L., & Park, K. (1998). *Wonders and the order of nature, 1150–1750*. New York: Zone Books.

Douglas, M. (1975). *Implicit meanings: Essays in anthropology*. London: Routledge and Kegan Paul.

Fenton, E. (1569). *Certaine secrete wonders of Nature, containing a descriptiō of sundry strange things, seming monstrous … Gathered out of divers learned authors as well Greeke as Latine, etc.* London: H. Bynneman.

Gerlino, L. G. (1624). *Disputatio philosophica de monstris*. Wittenberg: Christiani Tham.

Gould, G. M., & Pyle, W. L. (1937). *Anomalies and curiosities of medicine*. New York: Sydenham.

Grundfest, T. H., & Weisenfeld, S. (1950). A case of cephalothoracopagus. *New York State Journal of Medicine, 50*, 576–579.

Hall, A. R., & Hall, M. B. (Eds. & transl.) (1965–1977). *The correspondence of Henry Oldenburg, Vol. II, 1663–1665*. Madison: University of Wisconsin Press.

Holländer, E. (1921). *Wunder Wundergeburt und Wundergestalt in Einblattdrucken des Fünfzenhnten bis Achtzehnten Jahrhunderts. Kulturhistorische Studie.* Stuttgart: Ferdinand Enke.

Jimenez, F. A. (1978). The first autopsy in the New World. *Bulletin of the New York Academy of Medicine 54*, 618–619.

Liceti, F. (1634). *De monstrorum caussis, natura, et differentiis*. Padua: Paulum Frambottum.

Liceti, F. (1665). *De monstris. Ex recensione Gerardi Blasi*i. Amsterdam: Andrea Frisii.

Mellys, J. (1566). *The true description of two monsterous children, laufully begotten between George Stevens and Margerie his wyfe, and borne in the parish of Swanburne in Buckynghamshyre the iiij. of Aprill. Anno Domini. 1566. the two children hauing their belies fast ioyned together, and imbracing one an other with their armes: which children wer both a lyue by the space of half an hower, and wer baptized, and named the one Iohn, and the other Ioan.* London: Alexander Lacy.

Paré, A. (1982). *On monsters and marvels.* J. L. Pallister (Ed.). Chicago: University of Chicago Press.

Peña Chavarría, A., & Shipley, P.G. (1924). The Siamese twins of Española (The first known post-mortem examination in the New World). *Annals of Medical History, 6,* 297–302.

https://doi.org/10.1375/twin.5.6.521 Published online by Cambridge University Press

Peucer, C. (1553). *Commentarius de praecipuis divinationum generibus.* Wittenberg.

Praz, M. (1964). *Studies in seventeenth-century imagery*. Rome: Edizione di Storia e Letteratura.

Riolan, J. (1605). *De monstro nato lutetiae anno domini 1605. Disputatio philosophica.* Paris: Olivarum Varennaeum.

Rollins, H.E. (Ed.) (1927). *The pack of Autolycus; or, strange and terrible news of ghosts, apparitions, monstrous births, showers of wheat, judgments of God, and other prodigious and fearful happenings as told in broadside ballads of the years, 1624–1693*. Cambridge, MA: Harvard University Press.

Rueff, J. (1554). *De conceptu et genratione hominis, et iis quae circa hec potissimum consysderantur, libri sex.* Zurich: Christopher Froschauer.

Schenck, J.G. (1644). *Observationum medicarum rariorum*. Leyden: Ioanuis-Antonii Huguetan.

Schott, C. (1662). *Physica curiosa, sive mirabilia naturae et artis libris XII comprehensa, quibus pleraq[ue] quae de angelis, daemonibus, hominibus, spectris, energumenis, monstris, potentis, animalibus, meteoris, etc., rara arcana curiosaque circumferuntur, ad veritatis trutinam expenduntur, variis ex historia ac philosophia petitis disquisitionibus excutiuntur, et innumeris exemplis illustrantur.* Würtzburg: Jobus Hertz for Johann A. Endter & Wolff.

Spencer, R. (1992). Conjoined twins: Theoretical embryologic basis. *Teratology, 45,* 591–602.

Spencer, R. (2000a). Theoretical and analytical embryology of conjoined twins: Part I: Embryogenesis. *Clinical Anatomy, 13*, 36–53.

Spencer, R. (2000b). Theoretical and analytical embryology of conjoined twins: Part II: Adjustments to union. *Clinical Anatomy, 13*, 97–120.

Thijssen, J. M. (1987). Twins as monsters: Albertus Magnus's theory of the generation of twins and its philosophical context. *Bulletin of the History of Medicine, 61*, 237–246.

Willis, R.G. (1975). *Man and beast*. St Albans: Paladin.

Wilson, A. (1995). *The making of man-midwifery. Childbirth in England 1660–1770*. London: University College London Press.

Woodward, D. (1974). Some difficult confinements in Seventeenth-century Yorkshire. *Medical History, 18*, 349–359.

https://doi.org/10.1375/twin.5.6.521 Published online by Cambridge University Press