

De Monstruorum Causis, Natura et Differentiis (On the Reasons, Nature and Differences of Monsters) (1616), by Fortunio Liceti

In 1616 in Padua, Italy, Fortunio Liceti, a professor of natural philosophy and medicine, wrote and published the first edition of *De Monstruorum Causis, Natura et Differentiis* (On the Reasons, Nature, and Differences of Monsters), hereafter *De monstruorum*. In *De monstruorum*, Liceti chronologically documented cases of human and animal monsters from antiquity to the seventeenth century. During the seventeenth century, many people considered such monsters as frightening signs of evil cursed by spiritual or supernatural entities. Liceti categorized monsters based on their potential causes, several of which he claimed were unrelated to the supernatural. Historians later noted that some documented monsters were infants with birth defects. In *De monstruorum*, Liceti elevated the status of monsters to potential subjects of scientific inquiry and provided an early model for the study of birth defects, a field later called teratology.

In the seventeenth century, when Liceti published *De monstruorum*, many people classified infants with birth defects as monsters. According to historians Lawrence Longo and Lawrence Reynolds, humans have a fascination with abnormal body form, depicting anatomical anomalies on ancient rock carvings. By the late Middle Ages, people understood physical abnormalities in a religious context. Therefore, during the fifteenth, sixteenth, and seventeenth centuries, many people considered monsters, or those with physical abnormalities, to be signs of evil caused by supernatural beings. In some instances, people claimed the birth of a monster was the consequence of a woman making a deal with the devil. Others claimed that monsters were the result of a human copulating with an animal. Many people argued that monsters were the results of sin.

Liceti structured the content of *De monstruorum* based on his Aristotelian philosophical theories. According to medical historian Alan Bates, many of Liceti's ideas regarding the natural world were based on Aristotle's notions regarding natural history, or the study of living organisms, and of causality. Aristotle's theories from the fourth century BC sought to explain the reason why natural objects and beings come into and out of being, what Aristotle called generation and corruption. Aristotle proposed four different types of causes that create a final object or being. In their respective works, Aristotle and Liceti argued that in order to understand the natural world it was necessary to understand the way they came into being. According to medical historians Lawrence Longo and Lawrence Reynolds, Liceti did not dismiss monsters as signs of evil and beyond human understanding. Instead, he argued monsters could be explained through evaluating their causes.

Liceti wrote and published the first edition of *De monstruorum* in 1616 in Padua, Italy. In *De monstruorum*, Liceti chronologically documented cases of human and animal monsters from antiquity to the seventeenth century. He categorized monsters systematically, ordering them by type and cause. Liceti presented the monsters in *De monstruorum* as factual cases, though modern historians contend that many of the documented monsters were fictitious. Liceti also included instances of monsters that modern historians identify as infants with medically-diagnosable birth defects.

In the first edition of *De monstruorum*, Liceti broadly grouped monsters into two major groups, uniform and non-uniform monsters. The first group included uniform monsters, or monsters of a single species or sex. Uniform monsters were divided further into six categories. The first category included those he labeled deficient, or lacking arms or feet. He labeled the second category excessive, or those with two heads. Liceti labeled those who were both deficient and excessive as two-natured. He assigned conjoined twins in the fourth category that was labeled double. The fifth category, un-

formed, included children with broken or detached limbs. Lastly, Liceti categorized those who were excessively hairy or abnormally colored as extraordinary. The second major group included monsters that had body parts of different species or sexes, which Liceti called non-uniform monsters. Liceti discussed examples of non-uniform monsters such as man-animal hybrids and human-demon hybrids. Liceti also considered infants with both male and female sex characteristics, later known medically as hermaphrodites, to be non-uniform monsters.

In addition to categorizing monsters by type, Liceti hypothesized about their potential causes in *De monstruorum*. Instead of solely citing the supernatural as the reason for monsters, Liceti referred to possible biological causes. Those causes included semen with low potency and compression of the uterus. Liceti also indicated that hereditary illness was a potential cause of a monster. Hereditary illness was the medieval theory that physical malformations that occurred during a parent's lifetime could be passed on to their offspring. Liceti also cited the inability of Nature, an Aristotelian force that guided the creation of the natural world, to create a perfect being due to a deficiency in physical matter to form a human. If Nature used too much or too little matter while creating a human, a monster would result instead. In the work, Liceti compares Nature to an artist who can create something new and astonishing from imperfect materials.

According to historians, the public had mixed reactions to the first edition of *De monstruorum*. Prior to the publication of *De monstruorum*, monsters were featured in ballads and stories for children and not usually considered subjects of serious scholarly attention. Longo and Reynolds state that the first edition of *De monstruorum* was not widely read, and Bates suggested that one of the reasons that the book lacked appeal was the low academic status of the study of monsters. However, after the publication of *De monstruorum*, people brought several cases of monsters to Liceti due to his perceived expertise. In 1622, a physician in Genoa, Italy, wrote to Liceti about conjoined twins who had been born in the area. Liceti wrote back, cited possible causes for the birth defect, and claimed that the twins could potentially live for a long time.

In 1634, Liceti published a second edition of *De monstruorum* in Padua. The second edition had the same text in which Liceti categorized monsters by type and cause, but it also included over seventy illustrations by the artist Giovanni Battista Bissoni. The illustrations were engraved on copper plates and then copied on paper with ink. The second edition's many engravings were copied from other sixteenth century books about monsters. Bates cites the works of an early sixteenth century physician, Pare, and a philosopher, Lycosthenes, as sources for many of *De monstruorum*'s illustrations. The illustrations included monsters that historians identify as fictitious, as well as illustrations of infants with birth defects.

Using the illustrations in the second edition of *De monstruorum*, historians have constructed knowledge about the monsters of the sixteenth and seventeenth centuries. The illustration on the title page of the second edition depicted a man riding atop a group of monsters standing upon each other's shoulders. Longo and Reynolds hypothesized that the man may be the author, Liceti. The man and the monsters at the top of the acrobatic gathering are holding a banner with the title of the work. One of the monsters holding the banner is the Monster of Ravenna. People immortalized the Monster of Ravenna in literature after its alleged birth in the early sixteenth century near Ravenna, Italy. The monster reportedly had a child's head and torso, bird wings, and a claw with a single talon. The Monster of Ravenna was interpreted as both a religious sign and an omen about the Battle of Ravenna, a major battle that occurred during the Hapsburg-Valois Wars in the sixteenth century in Italy. Modern physicians noted that sirenomelia, a birth defect in which an infant's legs are fused together, might have been the true affliction. The illustrator featured other monsters with multiple heads, an elephant-human hybrid, and what are understood today as conjoined twins.

While the second edition of *De monstruorum* had illustrations of fictitious creatures, it also included images of infants with medically-diagnosable birth defects. Some of the illustrations depicted creatures that readers today understand as fictitious, like two-headed snakes, mermaids, goose-human hybrids, three headed sheep, and centaurs. In other illustrations, however, medical historians have identified cases of birth defects in infants. Those historians have concluded that some of Liceti's monsters were infants with cleft lip, or the lip opening to the nose. Depictions of birth defects also included individuals with diprosopus or the duplication of facial features, and cyclopia, or the condition resulting in one eye with two pupils and no eyelid. In the second edition, all of the creatures

were illustrated as living, though Bates argues that some of the monsters were stillbirths at the time of observation, if they were observed at all.

Contrary to the first edition, the second illustrated edition of *De monstruorum* was widely read and republished many times. Gerhard Blaes, or Gerardus Leonardus Blasius, a professor of medicine in Amsterdam, Netherlands, published a third illustrated edition in 1665. In the third edition, Blaes included a preface and an appendix of monsters that became famous after Liceti's first two editions. On the primary illustration of the third edition, a man, who, according to Longo and Reynolds, might again be Liceti, is pulling back a curtain to show a stage upon which are many monsters. In the center of the stage stands a five-breasted woman. In 1708, a French translation of the illustrated edition of *De monstruorum* was published. The French edition featured more new monsters, including conjoined twins who were dead. According to Bates, that was the first illustration in all of *De monstruorum*'s editions in which a specimen was identifiably deceased. The first French edition included many illustrations of multiple types of conjoined twins, including pygopagus twins, which were joined at the pelvis, dicephalus twins that were born with two heads, craniopagus twins joined at the head, and rachipagus twins joined at the vertebral column. Several illustrations of rachipagus twins depicted the conjoining of two different species. François Houssay, a scholar, published another French edition of *De monstruorum* in Paris, France in 1937 during the height of the surrealism art movement in France. The surrealism movement encouraged the use of myth and imagination to create new forms of artistic expression. Of Liceti's many works, twentieth and twenty-first century philosophers, historians, artists, and medical doctors most commonly revisit the second edition of *De monstruorum*.

Historians agree that Liceti's writing about monsters is worthy of display and study in *De monstruorum* was novel for the time it was published. Before *De monstruorum*, monsters were creatures of lore and superstition and not considered suitable by most for academic inquiry. According to art historian Sandra Cheng, Liceti brought anatomical defects, especially those defects accompanying birth, into popular social discourse. Liceti helped legitimize the study of monsters, making it appropriate for scholars to investigate their potential causes. According to medical historians, because of his classification of birth defects by their form and cause in *De monstruorum*, Liceti helped establish investigative methods for the study of birth defects, or teratology, in later centuries.

Sources

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