

BOOK REVIEW

Leonardo da Vinci: The Mechanics of Man, by Martin Clayton and Ron Philo, London: Royal Collection Publications Ltd., 2010, 157 pages, \$29.95, ISBN-13: 978-1-9056-8622-3.

When Leonardo da Vinci died in 1519, he left behind more than 5,000 loose pages of drawings and notes, ranging from small rough sketches to relatively finished works,

the largest known collection of Renaissance documents. These were subsequently passed on to his pupil and heir, Francesco Melzi, who was apparently so overwhelmed by the seemingly random arrangement and incomprehensible scope of Leonardo's works that he was unable to make any good use of the material. After Melzi's death in 1579, this vast collection was widely dispersed through carelessness and ignorance. One notable culprit, a sculptor by the name

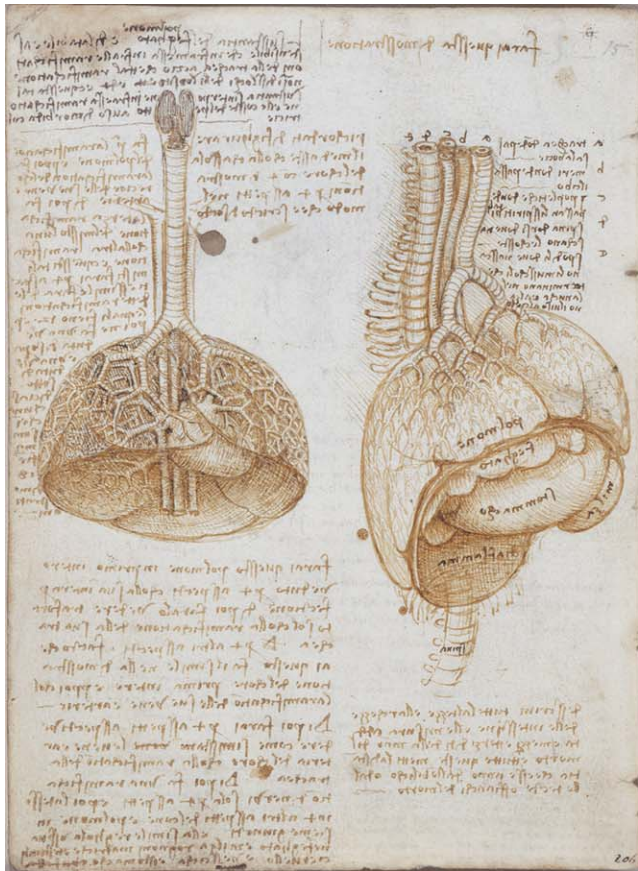
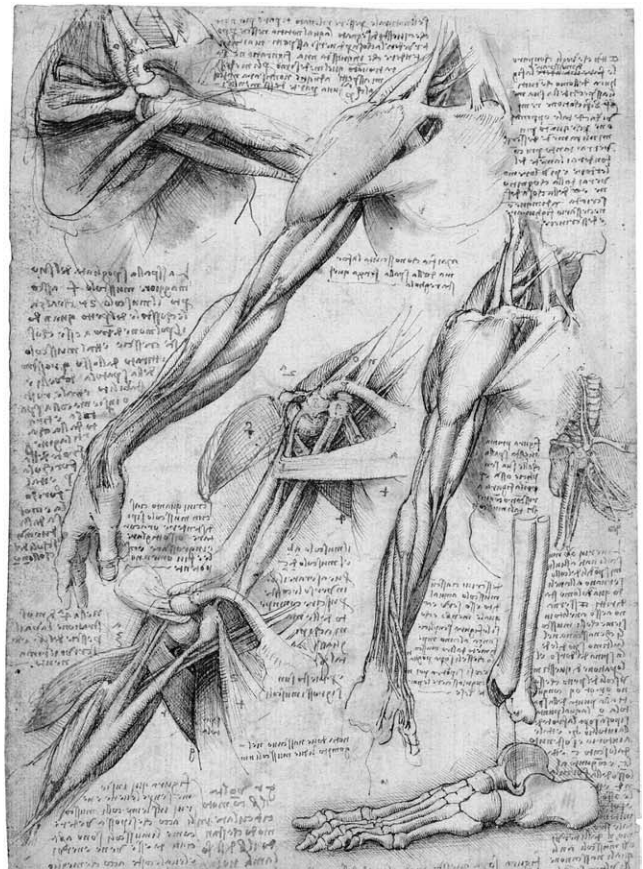


Fig. 1. Left: The Lungs and Other Viscera. Right: Muscles of the Shoulder and Arm, and the Bones of the Foot. This is one of the most dense and majestic of da Vinci's anatomical sheets. The drawings at upper center, center, and lower left are labeled 1st, 2nd, and 3rd



and were conceived by Leonardo as showing stages in the gradual dissection of the structure. Illustrations presented by courtesy of and with permission from the Royal Collection © 2011 Her Majesty Queen Elizabeth II, St James's Palace, London.

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of Pompeo Leoni, had lost a part of the collection and rearranged much of the rest by cutting and pasting pages in an attempt to separate the artistic from the technical works. Subsequent movement of manuscripts over the past five centuries has left us with 10 major collections of Leonardo's works, now found in various locations in France, Spain, Italy, England, and the United States (the latter—owned by Bill Gates—is the only one in private hands).

In this beautifully crafted book, Martin Clayton and Ron Philo provide a fascinating look at the large and beautiful reproductions of the images found in the one manuscript that contains the largest collection of Leonardo's anatomical illustrations—Anatomical Manuscript A—housed in the Royal Collection at Windsor Castle. This manuscript consists of 18 large sheets (16 double-sided and 2 single-sided), which contain more than 240 images and 34 pen and ink drawings. Each sheet contains numerous drawings done in various media and at different times of his life. On-going efforts to provide a reasonable chronological sequence for major periods and events in Leonardo's life have been remarkably successful and important for understanding Leonardo's true greatness. The quality, beauty, and accuracy of the reproductions in the book are immediately apparent in the first several pages of introductory illustrations. Here, we are presented immediately with large and exquisite images of a series of studies in surface anatomy of the head and neck, the upper limb, and a startlingly detailed two-page spread illustrating the bones of the trunk, the upper limb girdle (shown from two different perspectives—a common technique of Leonardo), along with smaller drawings of the pelvis and cervical vertebral column for completeness. Despite some minor anatomical crudities, these first images strike one as surprisingly modern and accurate. Leonardo even portrays the orientation of the pelvis accurately, something that often eluded early anatomists. This introduction whets the appetite.

Next comes a 22-page summary of Leonardo's life and times. Here, we see the beginning of his interest in anatomical activities about 1488, and his development from an artist who only needed to know how to make anatomically accurate depictions of human physiognomy to the serious (and precocious) anatomist whose early interest in form became an obsession with function. He needed to know how and why things worked, including the human body; art and science truly merged in Leonardo. He reputedly made some 30 dissections of the human body, but only one of these can, with any certainty, be described as whole-body

dissection. The essence of his work was clear visual description based on empirical observation.

The core of the book consists of 120 pages of illustrations and text that read like a short anatomical compendium. The authors' text notes and Leonardo's illustrations are placed on facing pages for convenient viewing. Leonardo's hand-written Italian text (his facility with Latin was limited) is clearly seen here, displaying his notoriously hard-to-read handwriting. Turning the page reveals more of the author's text on the left and a second copy of the main illustration on the right, now with English translation of all the small written comments of Leonardo. These comments are sometimes short, sometimes lengthy, and sometimes not relevant to the illustration, but they are always illuminating. The authors have done a wonderful job of replacing the Italian text of Leonardo (on the second sheet of each pair) and inserting the translated English version. The transition is seamless and contributes to the sense of quality seen throughout the book. It seems a small point, but it makes a big difference.

In his later years, Leonardo had hoped to complete a Treatise on Anatomy, which supposedly contained the complete compilation of all his anatomical work through the years. This is quite plausible, since there are numerous contemporary allusions to the existence of this treatise. We also know that in 1510, he became associated with a young anatomist named Marcantonio della Torre, who had an academic position at the University of Pavia and was known to be a rising star. Unfortunately, della Torre soon died of plague and any further collaboration ended abruptly, as did Leonardo's anatomical activity. Like his younger contemporary, Andreas Vesalius, Leonardo challenged traditionally held wisdom; but unlike Vesalius, he would have to wait some time for full recognition of his brilliant achievements.

The authors have thoughtfully included a complete glossary of 100 anatomical terms used by Leonardo in this book, an unexpected but much appreciated bonus. The book is printed in large format (12.5" × 9") on heavy paper; it is a joy to hold as well as to read. The margins are generous and will be of great value and convenience to all readers who like to make written notes. This book is a real gem that will repay all efforts to grapple with its contents.

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