

THE ANDREAS VESALIUS WOODBLOCKS: A FOUR HUNDRED YEAR JOURNEY FROM CREATION TO DESTRUCTION

DRVOREZI ANDREASA VESALIUSA: ČETRISTOLJETNO PUTOVANJE OD STVARANJA DO UNIŠTENJA

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SUMMARY

The purpose of this study was to trace the history of woodblocks created in 1542 by Andreas Vesalius (1514-1564). Carved by the Venetian workmen on pear tree boards, the woodblocks were used in the Basel printing of Vesalius' works De Humani Corporis Fabrica and Epitome from 1543, The China Root Epistle (1546), and the frontispiece of the Fabrica, the edition from 1555. The blocks remained with the printer Oporinus in Basel until his death in 1568 when they were sold to the Froben family. The woodblocks reappeared in 1706 in a publication by Maschenbauer and were subsequently used by Leveling in 1783. An incomplete set of woodblocks was moved from Inglostadt to Landshut and then to Munich where Roth in 1885 documented them. At the suggestion of an American physician, Samuel Lambert, the University of Munich found the "missing" woodblocks in the attic. This led Wiegand and the New York Academy of Medicine to publish the woodblocks in the Icones Anatomicae in 1934. The second edition frontispiece was returned to Louvain where it was destroyed by bombing in 1940 and all the remaining woodblocks were destroyed in Allied bombing between 1943 and 1945. Thus, the Vesalius woodblocks travelled a 400-year journey from

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their creation, through the use in eight publications with over 5000 prints and ended in their tragic destruction.

Key words: Anatomy; census; dissection; Epitome; Fabrica; human; Vesalius; printing; illustrations; physicians; universities.

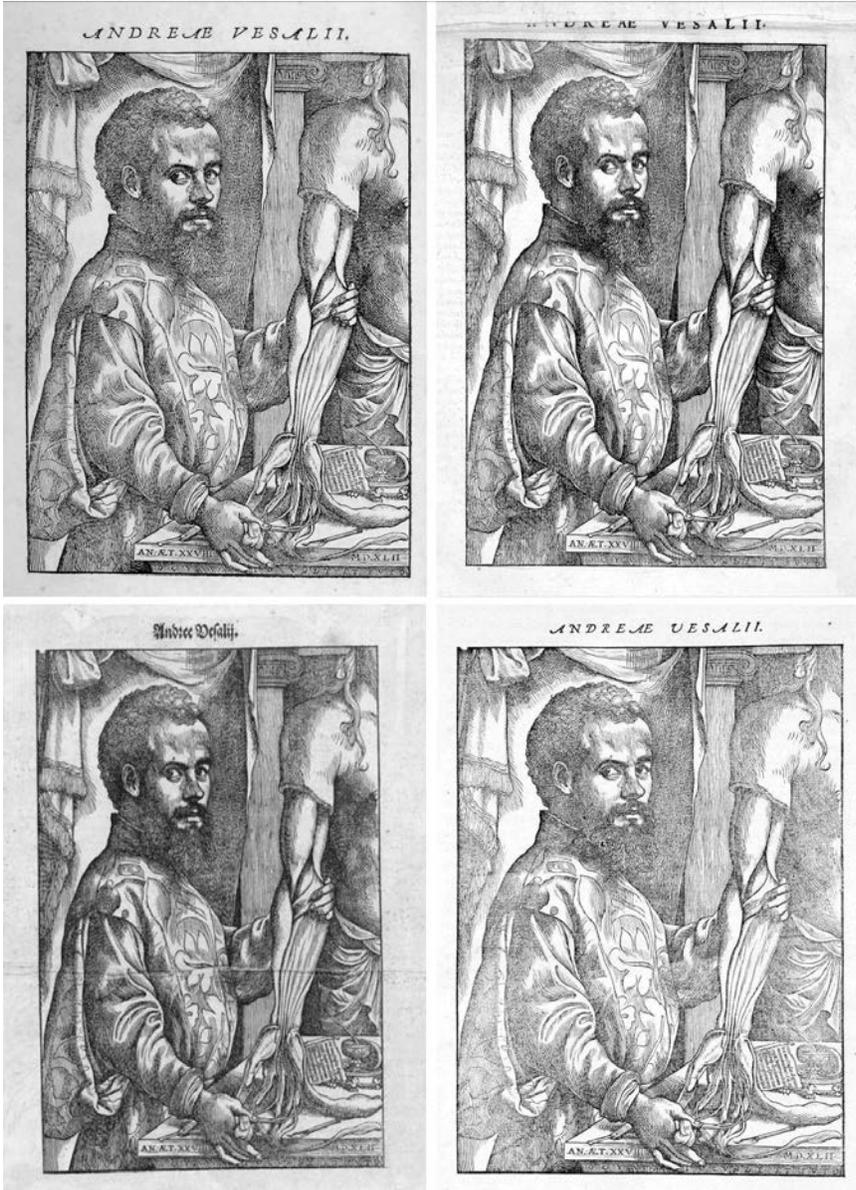


Figure 1: Images of woodcuts from woodblock of the Andreas Vesalius Portrait. From left to right, upper then lower: *Fabrica* of 1543, *Epitome* (Latin) of 1543, *Epitome* (German) of 1543 and *Fabrica* of 1555

Andreas Vesalius' treatise, *De Humani Corporis Fabrica*, is considered one of the greatest works on anatomy ever produced. First published in Basel, Switzerland by the publisher Johannes Oporinus in 1543 when the Flemish Vesalius was only twenty-nine years, the *Fabrica* changed the science of anatomy and the manner in which it was taught, and standardized anatomical representation for the next centuries. Vesalius critically reexamined Galen's thirteen-hundred-year-old anatomical text, which had been derived largely from the study of animals, and established the dissected human body as the reference point for anatomy. Vesalius anatomy was based on firsthand observation and he often conducted the demonstrations himself rather than using an assistant.

Five years before he produced the treatise, Vesalius published, at the request of his students, six large illustrations known as the *Tabulae Anatomicae Sex* (1538). Three of the drawings were probably done under Vesalius' supervision by Joannes Stephanus of Calcar, a pupil of Titian (c.1488–1576). However, Vesalius does not mention by name any of the illustrators or the artists who were involved in the production of the woodblocks for the *Fabrica*. It has been assumed, given Vesalius's past collaboration with Calcar for the *Tabulae* that he was also involved extensively in the *Fabrica*. In Martin Kemp's 1970 article, he points out that in 1568, Giorgio Vasari published the second edition of *Vite*, where he states in three separate sections that Calcar had designed the blocks for both the *Fabrica* and the *Epitome*.¹ Vasari specifically attributes "eleven large sheets of anatomy...later printed in small folio, and engraved on copper, by Valverde" to Calcar, which has previously been considered an erroneous reference to the *Tabulae Anatomicae Sex*. Kemp however, believes that it refers specifically to the human figures designed for the *Epitome*.² Vasari also alludes to the fact that Vesalius was a close friend of Calcar. Francisco Guerra notes in his 1969 article that contemporary biographers place Vasari in Venice for thirteen months between 1541 and 1542, where he stayed with Titian. Therefore, Guerra claims that Vasari's "repeated statements that [Calcar] was the draughtsman of Vesalius's *Fabrica* arose, not from hearsay, but from the fact that he was in Venice and in direct contact with the artist while the anatomical drawings were prepared and the blocks cut in 1542."³

¹ Kemp, M. (1970). A Drawing for the *Fabrica*; and Some Thoughts upon the Vesalius Muscle-Men. *Medical History* 14, 277-288; 279.

² Kemp, 279-280.

³ Guerra, F. (1969). The Identity of the Artists Involved in Vesalius's *Fabrica* 1543. *Medical History* 13, 1, 37-50. 40.



Figure 2: Images of the woodcuts printed from woodblocks of the Frontispiece. From left to right, upper then lower: *Fabrica* of 1543, *Epitome* (Latin) of 1543, *Epitome* (German) of 1543, *Fabrica* of 1555, *Leveling* of 1783, Bremer of 1934 (from *Fabrica* of 1543) and Bremer of 1934 (from *Fabrica* of 1555).

In the last 150 years, three drawings of various stages of the frontispiece for the 1543 *Fabrica* have been found and are now in the Waller Collection of the Universitetsbibliothek in Uppsala, Sweden (Stage 1), University of Glasgow Library's Hunterian Collection in Glasgow, Scotland (Stage 2), and the Huntington Library in San Marino, California (Stage 3), respectively. To further bolster Calcar's (1499-1546) connection to the project, Harvey Cushing found that the paper utilized for the second stage drawing bore the same watermark as the paper utilized for the *Tabulae*. Included among all stages of the drawings as well as in the final woodblock frontispiece, is a signed figure of "the young artist... with the figure, book in hand, overseeing the dissection", which Cushing believes is a self-portrait of Calcar (Kalkar).⁴

Vasari also notes the possible role of Francesco Marcolini (c. 1505-1560) in the process. Marcolini was considered an authority in printing in Venice at the time the woodblocks were being designed and constructed. According to Guerra the Marcolini's printing schedule included a gap from late 1540 through mid-1542. This coincides with the established timeframe for the production of the woodblocks.⁵ Because of this information and Marcolini's close

⁴ Cushing, Harvey. (1943). *A bio-bibliography of Andreas Vesalius*. New York, Schuman's. xxxiv.

⁵ Guerra, 43-44.



Figure 3 – Images of the woodcuts printed from woodblocks of the “Pondering” Skeleton. From left to right, upper then lower: *Fabrica* of 1543, *Epitome* (Latin) of 1543, *Epitome* (German) of 1543, *Fabrica* of 1555, Maschenbauer of 1706, Leveling of 1783 and Bremer of 1934



Figure 4 – Images of the woodcuts printed from woodblocks of the Inscriptions from the Skeleton. From Left to right, upper then lower: *Fabrica* of 1543, *Epitome* (Latin) of 1543, *Epitome* (German) of 1543, *Fabrica* of 1555, Maschenbauer of 1706 and Leveling of 1783

relations with Titian and his studio, Guerra postulates that “Calcar and Vesalius had to consider Marcolini from the start as the potential woodcutter for the *Fabrica*.”⁶

Marcolini had a supervisory role over the process of cutting the woodblocks, while the actual work would have been conducted by craftsmen in his employment. Guerra finds that Johann Britt, identified as the creator of portraits of both Charles V and Titian, and Giuseppe Porta, later recognized

⁶ Guerra, 44.

for his artistic works at the Library of San Marco in Venice, were employed at the shop and “produced beautiful woodblocks for other books.”⁷

Finally, another contender considered as playing a role in both the design and construction of the woodblocks was Domenico Campagnola (ca. 1500-1564). This artist was based in Padua, Italy and who was known for his detailed landscapes. While the similarity of the iconic continuous landscape background for the fourteen muscle figures was indicated by O’Malley in the 1964 biography on Vesalius⁸, Kemp also highlights Campagnola’s works that share similar features with the 1543 frontispiece:

*The Campagnolesque nature of the Fabrica woodblocks emerges most strongly in the title-page... The use of gesture and expression in the Vesalius dissection scene is strikingly similar to that in the group of spectators in Campagnola’s early Massacre of the Innocents... And the densely-packed excitement, so unexpected in the title-page, was one of the uniquely individual characteristics of Campagnola’s style as manifested in the Massacre.*⁹

The unique layout of the fourteen muscle figures compared with the rest of the woodblocks including the other larger anatomical works could have been completed separately from the rest of the set. Wiegand suggested that Vesalius had intended to publish the series of figures separately “for the use of scholars and students who could not afford to buy the complete work. This would explain the landscape as an artistic means of giving the two series of muscle-men the effect of better composition and more aesthetic appeal.”¹⁰

To briefly summarize the final output of this process, the Vesalian blocks were made of pearwood sawn parallel to the grain as was the practice in cutting wood for printing blocks from the fifteenth to the seventeenth centuries.¹¹ When the blocks were rediscovered in 1932, Wiegand was astonished at their overall condition given the fragility of the wood especially in the finer carved elements and their extensive use over a nearly 400-year period. It appears that the blocks were either treated with or boiled in hot linseed oil, which provided the woodcutters with a much more flexible surface to carve the fine lines. This process achieved the remarkable clarity and depth with which the Vesalius illustrations are so renowned. Wiegand discusses

⁷ Guerra, 45-46.

⁸ O’Malley, C.D. (1964) *Andreas Vesalius of Brussels 1514-1566* C.D. O’Malley University of California (1964) 128.

⁹ Kemp, 286.

¹⁰ Wiegand, W. (1952). *Marginal Notes by the Printer of the Icones. Three Vesalian Essays to Accompany the “Icones anatomicae” of 1934.* New York, Macmillan, 39.

¹¹ Wiegand, 32.

the techniques the woodcutters would have utilized to achieve the level of detail in the woodblocks, which remains unsurpassed to this day:

The contour lines both swell and diminish. The parallel shading lines are remarkably long and model the shape of the figure by their more or less rounded effect. The deeper shadows are produced by crosshatching, which permits a strong contrast...The fine shading lines do not end abruptly but in a downward-cut curve on the face of the block, so that in the imprints these lines taper toward the end, giving a soft effect instead of an abrupt termination.... Another peculiarity is that the parallel shading lines are not generally made by two cuts at right angles to the face of the block but with an oblique undercutting so that they look like a half-opened fan. Perhaps the hand of the woodcutter attained a gentler and more delicate movement in cutting in this way. The result is that, in printing, these fine shadow lines are somewhat elastic and give way slightly with the pressure...My artist friends in Munch to whom I showed the Vesalian blocks could not understand at all how it had been possible to cut them [the blocks]. In cutting pear-tree boards sawed parallel with the grain, they had always met with difficulty in cutting lines across, or oblique to, the grain. The wood of the grain is brittle and breaks away when the fine lines are cut. This difficulty seems to be removed by oiling the wood, whence the blocks become of very equal texture and elasticity, and the grain loses its brittleness... [This method] seems to have been forgotten like so much other handicraft knowledge of the Middle Ages.¹²

Given the sheer scope of the project, not to mention the amount of detail involved on artistic, scientific, and printing levels, it appears the woodblock cutting was a collaborative effort rather the result of one artist working with Vesalius directly. In discussing the rediscovery and utilization of the woodblocks for the 1934 *Icones Anatomicae*, Wiegand summarizes this point most eloquently:

Fortunately, Vesalius found in Venice a class of workmen superior to any who could be found in Germany...The Vesalian blocks show a perfection in the cutting of the wood.... Enough cannot be said for the skill and artistic feeling with which these technical details are employed in never-ending variety.

By August 1542, the woodblocks were completed in Venice and Vesalius sent them on their perilous journey through the Alps to Basel, Switzerland, where they were received by Oporinus around mid-September 1542. Simultaneously with the *Fabrica*, Vesalius edited a succinct compendium

¹² Wiegand, 33.

which he called *Epitome*, which was also printed by Oporinus. It became available on August 13, 1543 with a price that was considerably lower than the *Fabrica*. Vesalius had planned this smaller separate edition much earlier in Italy which is apparent from the dedication to the emperor's son, Prince Philip. The thin volume was to serve as an introduction to the *Fabrica*, a footpath along the road of the larger books. It was meant not only for students of medicine but also for artists.

The Latin *Epitome* consists of 14 pages of text printed on royal paper, with 75 lines each, and nine sheets of illustrations that are larger than those in the *Fabrica*. Some plates are larger due to captions around the illustrations. The *Fabrica* also contains two oversized plates that were inserted but were possibly destined only for the *Epitome*. The pages are larger than the *Fabrica* format and so had to be folded in half. The first twelve sheets were printed on both sides, but the last two leaves were printed on only one side to be cut out and pasted together for a three-dimensional display of the anatomy. These latter sheets are often lacking as a result.

Two months after the appearance of the *Epitome*, Oporinus' press issued a German translation (Von des menschen corpers Anatomy), produced by

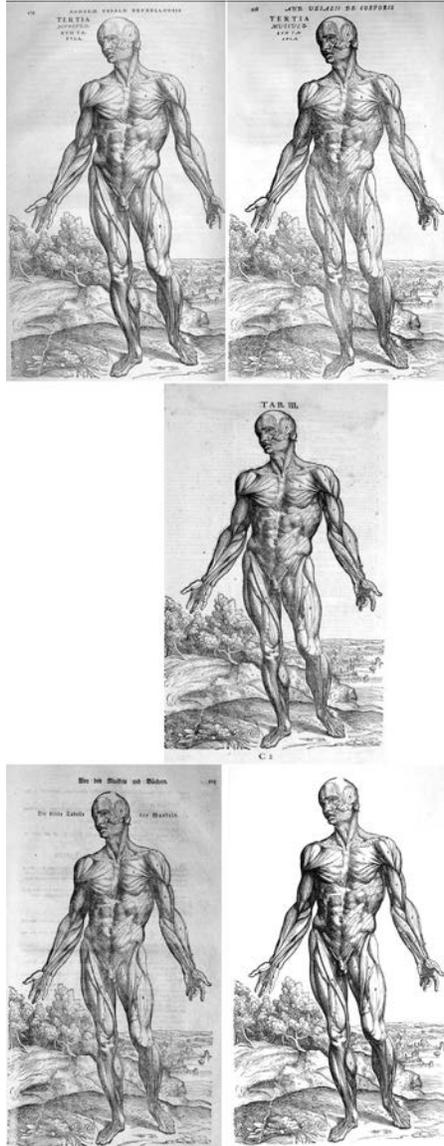


Figure 5: Images of the woodcuts printed from woodblocks of the Third Muscle Figure. From left to right, then upper then lower: *Fabrica* of 1543, *Fabrica* of 1555, Maschenbauer of 1706, Leveling of 1783 and Bremer of 1934.

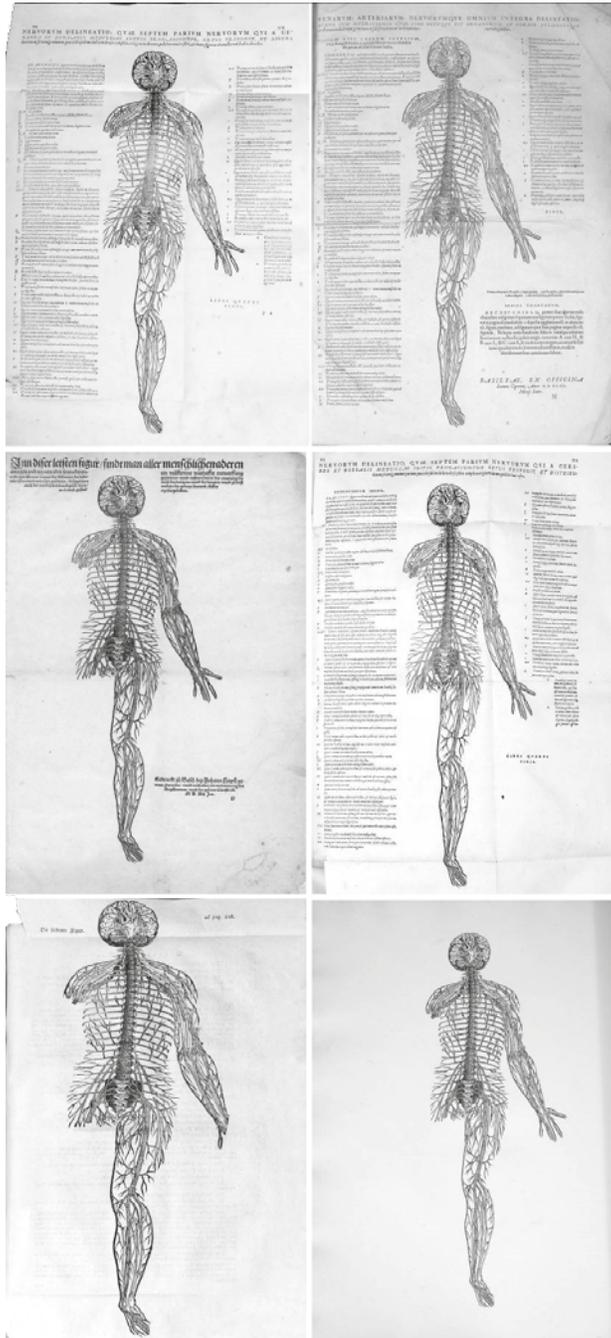


Figure 6: Images of the woodcuts printed from the woodblocks of the Fold-Out. From left to right, upper then lower: *Fabrica* of 1543, *Epitome* (Latin) of 1543, *Epitome* (German) of 1543, *Fabrica* of 1555, *Leveling* of 1783 and *Bremer* of 1934

the University Rector, Albanus Torinus (Albanus zum Thor). The translation seems to have been exceedingly difficult as the German language did not have the adequate words for many anatomical terms. Torinus dedicated the translation to the Duke of Württemberg for whom he served as a physician. The Duke praised the author pointing out that Vesalius had compressed into a few pages what Galen had spread over twenty-seven books. Although the German *Epitome* was directly translated from Latin and printed on the same type and size of paper, the two editions vary greatly.

Due to the larger font size and additional space needed for the translation, nearly all of the legends for the figures were printed on separate pages in the German edition and not on the margins around the illustration as in the Latin *Epitome*. This extended the entire length of the work to 19 sheets. Because the legends could not fill the entire sheet, the German edition incorporated 13 additional figures from the *Fabrica*, including two depicting a dissected abdomen and four figures of the heart. Finally, the woodblock of the skeleton features a German inscription on the column instead of the Latin hexameters. This inscription does not match that in Andreas Maschenbauer's *Zergliederung dess Menschlichen Körpers*, first printed in 1706, which uses the same woodblocks. In addition, the sheet with the skeleton also includes an illustration of the vagina and the uterus from page 381 of the *Fabrica* along with a description of the figure at the bottom of the page. Beyond the additional blocks borrowed from the *Fabrica* for this edition, two new illuminated letters were either created or borrowed from Oporinus's existing stock for the dedications. It is interesting to note that they have never been accounted for in any of the subsequent discoveries of the blocks nor were they used in either the abovementioned Maschenbauer or Heinrich Leveling's *Anatomische Erklärung*, first printed in 1781. As far as we know, none of the blocks for the decorated initials were found. Therefore, they are omitted from the overall count of 279 blocks produced for the *Fabrica* and *Epitome* and presumed destroyed at this point. Cushing thought that the German edition "must have presented a considerable(y) more difficult task for the compositor even than the Latin issue, which...was highly complicated and confusing in itself."¹³

Once Vesalius left Padua in December 1543 to assume the role of Physician in the Court of Charles V, his experiences in the medical field were broadened to include duties as both military surgeon and general physician, contending

¹³ Cushing, 113-114.

with gunshot wounds at one minute and an obstinate King the next. The latter of his duties involved Charles V himself who, now well into his 40s, was suffering from acute attacks of arthritic gout as well as asthmatic seizures and frequent intestinal disturbances. Between his serious health conditions and unwillingness to listen to any medical advice related to his diet or the “quack” preparations to which he was subjecting himself, Vesalius had to seek an alternative approach to address the King’s health concerns. In his role as Charles I of Spain, Charles V and his Court received considerable access to the boundless supply of plants that were being discovered in “New Spain” and subsequently shipped back to Europe. This included as Cushing notes, “cloves and rhubarb, ginger and cinnamon, not to mention bitumen, amber oil, and other strange gums and balsams.”¹⁴ Amongst these plants was a product derived of guaiac wood and a form of smilax or sarsaparilla with the dubious name “China Root”, which was being prescribed throughout the continent for its vast medicinal uses. Vesalius persuaded Charles V to begin a regiment of “Spartaparilla”, as Vesalius spelled it, for the King’s arthritic gout.¹⁵ The results are outlined in a work known as *The China-root Epistle*, which was first circulated by Joachim Roelants including a more recent publication.¹⁶ Cushing surmises that a copy of the Epistle was received by Vesalius’s brother, Franciscus, who “doubtless secured his brother Andreas’ permission to have it printed by Oporinus.”¹⁷ Beyond his prescription of the plant, the Epistle has shed light on many events in Vesalius’s life including the now infamous incineration of his papers and medical library in Padua in December 1543 before assuming his role as Court Physician. Of note to this publication, initial letters and a portrait block were utilized from the *Fabrica*. Cushing does not include an estimate of the number printed, but only noted coming across eleven copies in his research.¹⁸

In a 2012 article outlining the history of the 1934 work *Icones Anatomicae*, the author Donaldson delves in to the symbolism of the inscriptions of the portrait block. On the edge of the table, the numbers denote Vesalius’s age (28) and the date (1542). Vesalius is depicted demonstrating a dissection of

¹⁴ Cushing, 160.

¹⁵ Cushing, 161.

¹⁶ For a recent publication on Joachim Roelants and the *The China-root Epistle*, see: Biesbrouck, Maurits, Theodoor Goddeeris, Omer Steeno, Jacqueline Vons. ‘Introduction à la Lettre sur la racine de Chine (1546)’ in Jacqueline Vons et Stéphane Velut, *La Fabrique de Vésale et autres textes*, Paris, BIUSanté, mai 2016, 21 pp.<http://www3.biusante.parisdescartes.fr/vesale/pdf/racine.pdf>.

¹⁷ Cushing, 163.

¹⁸ *Ibid.*

the flexor muscles of the fingers and tendons, which, Donaldson notes, are “shown grossly out of scale with [Vesalius’s] own figure.”¹⁹ The scrap of paper laying on the table with an inscription refers to a chapter heading and description of the muscles Vesalius is demonstrating in the *Fabrica*. Donaldson observed that the chapter heading is incorrect as: “a revised version of the same text is found, not in Chapter 30 but in Chapter 43 (page 304) of the second book of the *Fabrica*.”²⁰ Finally, there is a third inscription included in the block that is very often overlooked. Located below the edge of the table in the darker hatched section of the table side, it reads “ocys [for ocuis] iucunde et tuto’ – translated as ‘swiftly, pleasantly and safely.’”²¹ After making note of the previous discovery that Vesalius used this exact same phrase in a “Stammbuch” belonging to Abraham Ulrich (1526-1577), Donaldson referring to previous publications²², suggests that Vesalius may have applied the phrase as a general motto for himself or that it may have been adopted as an emblematic phrase for the family, given their extended tradition of medical service to the Royal Court. If this is the case, Donaldson observes that “this might make [Vesalius’s] defection from academic anatomy at the very height of his fame as an anatomist to become a medicus at the court of the Holy Roman Emperor Charles V easier to understand.”²³ Although he may have stopped performing anatomical dissections, it is Vesalius that was involved in the preparation of the second edition of the *Fabrica* by Oporinus, and therefore he did not entirely leave the field.

By the early 1550s, the market for the *Fabrica* remained strong with the production in Lyons of an unauthorized cheaper pocket edition in 1552. This was published as soon as the protective privilege granted to Vesalius by the French king had expired. This suggests that there was a demand for an expensive illustrated second version of the *Fabrica*, enough to make the effort and financial outlay of its production worthwhile. Before the officially recognized second edition was released, Oporinus’s catalog from May 1552 included five of the seven books of the work, but Cushing noted that no copy

¹⁹ Donaldson, I. M. (2012). Andreae Vesalii Bruxellensis Icones anatomicae. Part 2. *The Journal of the Royal College of Physicians of Edinburgh*, 42(3), 280-282. 280-281.

²⁰ Donaldson, 281.

²¹ *Ibid.*

²² Klose W. Wittenberger gelehrtenstammbuch. [Das Stammbuch von Abraham und David Ulrich: benutzt von 1549-1577 sowie 1580-1623.] Halle: Mitteldeutscher Verlag. 1999; Fichtner G. [Die verlorene einheit der medizin und das ‘handwerk’. Ein unbekannter Stammbucheintrag Andrease Vesals als Schlüssel zu seinem Lebenswerk.] In: Kroner P. Rütten K, Wiesmann U et al, editors. *Ars medica: verlorene einheit der medizin?* Stuttgart Jena; 1995. pp. 5-23.

²³ Donaldson, 282.

of this fragmented version appears to have survived.²⁴ A letter has surfaced from Oporinus to Conrad Hubert of Strassburg, which was initially translated into English by Max Fisch and is quoted by John Fulton in an editor's note for the *Bio-Bibliography of Andreas Vesalius*. In it, Oporinus underscores the difficulties in undertaking another edition of this dimensional size and length:

*Shortly before your letter came I had written to Michael Toxites to secure for me from the guardians of Dryander's children the moulds and tools for the large types in which we had had some things of Plutarch and others printed by Augustine Fries. Dryander himself had previously lent me the moulds to make the types for the second edition of Vesalius's Anatomy. But now some of the types are so worn from use that I must have more cast in order to finish the Anatomy which I started long ago and I cannot do so without the moulds and tools. I could easily get them again from Dryander if he were still living. But if the guardians will not let me have them for the asking, I shall gladly buy them at a fair price, just to be sure of their being sent to me promptly, by the next post despatched to me at my expense. I had rather lose two or three florins than be without them longer and go on day after day being prevented from finishing a work begun three years ago. I beg you, Conrad, to see that I get them, and that they reach me quickly.*²⁵

The completed second edition was unveiled in 1555 and was more sumptuous than the 1543 first edition. It was printed on thicker paper, set in larger type and had more widely spaced lines. Vesalius made both stylistic and factual changes, and in some cases this required the design and production of a new initial letter woodblock. The new illustrations, with the exception of the title page, are generally considered to be even finer than those in the 1543 edition. This second edition also had several textual alterations, including a revised chapter on embryology, a description of the venous valves, and two new chapters. No documentary evidence remains for the decision behind the production of a second edition except possibly to answer specific criticisms of the content leveled at the first edition and for Vesalius to answer his detractors in the new edition.

The blocks remained in Oporinus's shop in Basel until his death in 1568. At this time, it is presumed the contents of his shop and printing rights were sold to Ambrose Froben. Cushing bases this assumption on the fact that

²⁴ Cushing, 90.

²⁵ *Ibid.*

Froben printed Felix Platter's 1583 work *De corporis humani structura et usu*, in which the author describes why some of the blocks attributed to the *Fabrica* are utilized in his work in an altered format:

*As up to the present time the plates of Vesalius are the best that have ever been offered, and as it would be almost impossible to surpass them, I would have willingly added them to this volume introducing a few slight changes (because the opportunity presented itself for buying them), if I had not been prevented from this intention by the necessity of adopting under the circumstances a volume of so large a size it would be inconvenient for students. That is why I have had the plates of Vesalius engraved on copper in reduced size and with slight changes; and to them I have added a few others.*²⁶

Platter does not admit to buying the blocks outright, rather opting to essentially borrow them to have copper plates engraved based on the designs. It was not necessary to have the woodblocks in order to have copperplate engravings of the images. The blocks would not be very useful except to print an image which could then be used for the engravings and a copy of the *Fabrica* would be as good a source. Thomas Geminus engraved very exact copies of the images from the *Fabrica* in 1545 without any access to the woodblocks. Cushing often made assumptions that have little basis in evidence. It is believed that the Vesalian blocks were not used in Platter's work but only versions of the Vesalian images were used. It is possible that Froben did have the blocks, but Cushing is incorrect in assuming that Froben indisputably had the blocks because he published engraved images of the Vesalian figures for Platter. Cushing assumes that they were purchased by the Frobens and stayed with the family until the third generation shuttered their shop in 1603.²⁷ From there, the blocks seemed to have been passed to the König family of typographers in Basel. This again is an assumption by Cushing based on the second edition of Platter's work, published in 1603, where "the Froben device appears at the end of the second book, whereas the third book containing the illustrations has again a new title-page but with no further evidence of participation by the Frobens."²⁸

From this tangential published connection to the blocks, the trail goes silent until 1706 when the blocks resurface in Augsburg, Germany, in the

²⁶ Cushing, 97. See also: Platter, Felix. *De corporis humani structura et usu Felicis Plateri ... libri III. Tabulis methodice explicati, iconibus accurate illustrati* [Three books on the structure and the function of the human body by Felix Platter ... Explained with surveyable plates and accurately illustrated], [Basileae] Ex officina Frobeniana per A. Frob., 1583.

²⁷ Cushing, 98.

²⁸ *Ibid.*

hands of Andreas Maschenbauer. Cushing tries to explain this extensive 100-year gap by theorizing that the blocks remained in the collection of the König family in Basel until they inevitably closed their printing shop, with a public sale of its contents. However, as Cushing himself admits, this explanation is not based on any solid fact. To make the leap to bringing the blocks into Maschenbauer's possession, Cushing delves further into conjecture by suggesting that, as a noted printer and publisher in Augsburg, Maschenbauer could have heard of the sale or "happened at the time to be in Basel on some other business."²⁹ Regardless of what really did occur in the interim, the conclusion remains the same. For the first time in over two hundred years, the blocks were actually utilized in a published work, the first edition of *Zergliederung dess Menschlichen Cörpers*. In an address to the reader, Maschenbauer acknowledges the use of the blocks in the work and strongly emphasizes their referential value for artists, given their supposed connection to Titian's studio:

*In this work are published figures executed by the Italian, Titian...a man phenomenally famous through Europe; and these illustrations he had made for the works of that famous anatomist Andreas Vesalius, the originals of which happened to fall into my hands by special chance.*³⁰

Maschenbauer only utilized nineteen of the blocks, twelve from the *Fabrica*, four from the *Epitome*, and "the lateral view of the skeleton in both [editions]."³¹ Given the finality of the characters on the blocks, Maschenbauer made do by predominantly utilizing Greek type, but Cushing notes that hardly anything was borrowed from the German *Epitome*.³²

By 1723, Maschenbauer decided to produce a second edition of *Zergliederung dess Menschlichen Cörpers*, this time with just 14 pages compared with 16 in the first edition. According to Goree, the blocks had suffered some damage in the intervening years, specifically noting damage incurred to the fourth figure block from the *Epitome* based on a comparison of images from the two editions.³³

Maschenbauer died not long after publishing the second edition, leaving the blocks to eventually be sold by his heirs to the Bavarian physician Johann Anton von Wolter (1709-1787), who brought them to Ingolstadt,

²⁹ *Ibid.*

³⁰ Cushing, 99.

³¹ Cushing, 100.

³² *Ibid.*

³³ Goree, 19-20.

Germany. Wolter was the director of the medical faculty at the University of Ingolstadt and decided to utilize the blocks in an anatomy textbook with German descriptions. Heinrich Palmaz Leveling (1742-1798), was entrusted with the project. In a publication announcing Wolter's intentions, Leveling demonstrated that the blocks that were uncovered were authentic. Cushing tells of making a careful comparison of the woodcuts in the 1543 and 1555 editions that were produced under Vesalius' supervision and "calls attention, for the first time..., to the fact that in the latter the lettering in many of the cuts had been made more clear by cutting away the shading."³⁴ Goree documents extensively the condition of the blocks as they were found in Leveling's possession:

The one portrait of Vesalius was lost. In either Basel or Augsburg, the number eight muscle figure block, with few soft-tissue parts remaining to study, had been discarded. Perhaps to complete collection for sale, a block for number eight had been recut, but to transfer the design to wood more easily, the image was reversed from the original work. Leveling considered the result to be a work of inferior craftsmanship ordered by Maschenbauer, but he included it in his book. He apparently overlooked the fact that the large and bizarre rendition by Vesalius of the female genitalia, also of little anatomical value, was another reversed recut, probably a result of the same "inferior craftsmanship." Twelve small blocks of the original group were also lost, and Leveling had them reproduced "and fairly well done by a Munich artist" for the use of his edition. When updating the Vesalius material, Wolter and Leveling probably threw away at least twenty-two of the other small blocks, most of which were only diagrammatical.³⁵

Leveling eventually would produce 1500 copies of *Anatomische Erklärung*, first published in 1781 and sold in parts and then approximately 1180 copies remaining were bound together and sold as a complete work in 1783 with a slightly altered title and dedication.³⁶ Interestingly, the work must not have been a very successful endeavor as Cushing notes that a "considerable remainder of the 1500 printed copies was found in Leipzig some years ago and they were sold by Speyer and Peters."³⁷ In the 1783 dedication, Leveling hints about Wolter's declining health and Goree confirms his death as having occurred in 1787.³⁸ Soon after, given his connection with the University of

³⁴ Cushing, 101-102.

³⁵ Goree, 21.

³⁶ Cushing, 105.

³⁷ Cushing, 106.

³⁸ Cushing, 106. Goree, 23.

Ingolstadt, the blocks were deposited in the library. In 1799, Prince Elector Maximilian IV Joseph of Bavaria declared that the library be moved to Landshut, where it would be more readily accessible to nearby Munich.³⁹ By 1802, the soon to become King Maximilian I, shut many of the monasteries scattered throughout Bavaria. Their manuscript holdings were transferred to Landshut where they were incorporated in the collection, nearly doubling the size of the institution's holdings. Goree posits that the massive influx of books would have placed a tremendous strain on their limited repository space, which could have led to the blocks being "closeted away and forgotten in the rapid growth."⁴⁰ By around 1826, the newly named Ludwig-Maximilians-Universität was relocated to Munich.

The woodblock trail goes cold for over 60 years until 1885, when a Swiss pathologist, Moritz Roth (1839-1914), decided to search for the blocks in the Munich University library and was unsuccessful. Eight years later, Roth received word from the director of the library that he had come across the blocks in a "long-unused cupboard."⁴¹ Roth visited soon after and discovered that 159 of the blocks were included in the set, two measured 40 centimeters in length, which refer to the first and fourth muscle figures originally printed in the *Epitome*.⁴² With "Teutonic thoroughness", Roth documented each block in a series of charts, which were published in an article for *Virchow's Archiv* in 1895, that noted they were used in the 1543 and 1555 *Fabrica* as well as in Leveling's edition. Most of the blocks uncovered at this juncture were of smaller illustrations and diagrams, with only six of the 30 larger illustrations present.⁴³ According to Goree, by 1913, the blocks were probably lost again due to a series of construction projects at the library, which by then was considered as having the largest collection of books of any German university.

In 1932, Samuel Lambert (1859-1942), a noted physician and bibliophile who served as the President of the New York Academy of Medicine, learned of Roth's article and wrote to Wiegand (1886-1961), the owner of the Bremer Press in Munich, to contact the university library in Munich. Wiegand describes the discovery of the blocks in great detail:

³⁹ Goree, 23-24.

⁴⁰ Goree, 24.

⁴¹ Cushing, 106.

⁴² Goree, 25.

⁴³ Wiegand, 31.

I must confess that up to that time I knew very little about Vesalius, and I never had heard that some of the Vesalian wood blocks were still preserved in Munich. The library staff at the University likewise knew nothing about them. Finally, the director of the library, Dr. Adolf Hilsenbeck, remembered that in the attic was a wooden box inscribed "Vesalius" in which the Vesalian wood blocks might have been deposited. A very heavy case was brought downstairs, and on opening it I found it filled with wood blocks. I counted them and was very much astonished to find all together about 230 blocks, a much larger number than Professor Roth had described, among them all the large ones of the Fabrica and the Epitome...Ever afterwards when I was asked by friends about the finding of the blocks, I replied that it had been the simplest thing in the world.⁴⁴

Soon after the discovery of the nearly complete set, Lambert and Wiegand began to discuss the compilation of the blocks with other works for a definitive atlas, *Icones Anatomicae*, published in 1934. All of the pages for the edition were printed on a modern hand-press, which was able to exert a higher and more uniform pressure, and, along with the use of additional ink and more substantial paper, resulted in a substantially sharper image. Donaldson notes that even in the 1543 *Fabrica*, "the cross-hatched lines are poorly defined and badly broken-up, whereas in the 1934 reprint they are completely sharp, of even density and quite unbroken."⁴⁵ Wiegand also discusses a technique of applying paper between the print paper and the top plate of the handpress, which also helped to achieve this unprecedented level of clarity in the prints:

With the aid of this layer of paper, we can reinforce or weaken the pressure of the different lines and endings of lines by pasting tissue paper strips on the sheet of paper or by cutting it away. This method requires a hand press of better balance and capable of stronger pressure than the hand presses of the sixteenth century afforded. So it is probable that in the time of Vesalius, preparation for the press could be done only in a rough way, and that therefore the woodcutters had to take into account the adjustment of the pressure in cutting the blocks.⁴⁶

In examining the blocks, Wiegand found them to be surprisingly in great condition for their age and estimated they had been used in three to four thousand printings.⁴⁷ With the exception of two that were split, the blocks

⁴⁴ Wiegand, 27-28.

⁴⁵ Donaldson, 280.

⁴⁶ Wiegand, 33.

⁴⁷ Wiegand, 32.

were in virtually the same condition as documented in *Anatomische Erklärung*. However, concurrent to the discovery of the 227 blocks in Munich, the second edition frontispiece block also surfaced in the hands of Laurent Fierens (1875-1961), a banker “with a large assortment of curiosities.”⁴⁸ He eventually donated it to the University of Louvain library who agreed to send the block to Munich to be included in the *Icones Anatomicae*. Compared with the others, Archibald Malloch, librarian at the New York Academy of Medicine, colorfully used the “adjectives ‘gondolee’ and ‘bombee’...to describe the condition of the block at present.”⁴⁹ Both Malloch and Wiegand were fearful that the block would disintegrate once inserted in to the press, but instead it performed beautifully and a photograph of both frontispieces “in action” was sent to both the New York Academy of Medicine and Harvey Cushing by Wiegand in 1935.

Unlike copper plates, woodblocks hardly wear at all during printing, although they can be damaged. Unfortunately, this is where the history of the woodblocks comes to an untimely end. The second edition frontispiece was returned to Louvain following the completion of the *Icones Anatomicae* in 1934. It was destroyed with the majority of the contents of the Louvain University library by the German army in 1940.

The remainder of the blocks uncovered by Wiegand stayed in Munich at the University of Munich Library. As the city began to fall prey to Allied bombing in 1942, many of the library’s collections were moved to the countryside. Joachim Kirchner (1890-1978), Director of the Munich Library, decided to strictly adhere to the orders put forth by the Reichministry of Scholarship “that under all circumstances the schoolwork of the university must be maintained. In the event of air attacks, the contents of reference libraries, reading rooms, and work and catalog areas could not be sent away, but had to remain in university buildings, including the ‘officially bombproof’ basement of the library’s north wing.”⁵⁰ Goree remarks that this directive also led to the prolongation of exhibitions of the library’s most valuable items following each bombing raid to “further the illusion of business as usual.”⁵¹ Thanks to the discovery of a book by Ladislaus Buzas that was devoted to the history of the University Library of Munich, Goree was able to relate in detail the last days of the woodblocks:

⁴⁸ Goree, 27.

⁴⁹ Malloch, A. (1933, February 2). [Letter to William Francis]. William Willoughby Francis Papers. McGill Library, McGill University, Toronto, Canada.

⁵⁰ Goree, 40.

⁵¹ *Ibid.*



Figure 7: University Library of Munich (Phot. 29), 1946. Courtesy of Sven Kuttner, Director Universitaetsbibliothek der LMU Muenchen

To protect these interesting volumes, rare manuscripts, and early prints, they were all stored in the basement of the north wing. In the air attacks of 1943 through 1945, the LMU Munich Library lost 350,000 of its 1,100,000 books, those salvaged having been transferred out. On 13 July 1944, about five hundred B-17 bombers of the Eighth United States Air Force attacked Munich, and most of the university buildings were burned. The upper floor of the north wing collapsed, but the basement was spared for three days. On 16 July, another attack of some two hundred B-17s hit the city again, and two high explosive bombs set the foundation on fire, incinerating the contents of the basement of the north wing. In the rubble lay the ashes of ninety thousand volumes that had not been sent away, various catalogs, and a curious combination of documents and artifacts, probably intended for Kirchner's exhibitions. These included a portrait collection, correspondence of Leibnitz, manuscripts of the Upper Bavarian Document Collection, a rare leather-cut book, a chained book, and the 228 woodblocks of Andreas Vesalius.⁵²

When Cushing wrote the section on the woodblocks for the *Bio-Bibliography of Andreas Vesalius* in September 1939, the piece ended with a remarkably positive conjecture for the fate of the blocks in the next 400 years. In acknowledging the cusp of the Second World War, Cushing accurately

⁵² Goree, 40-41.

predicted that the map of Europe would be altered and that the course of history would be changed forever. This altered course would unfortunately lead to the destruction of the woodblocks as well. Although the blocks have been lost to future generations, their impressions have left an indelible mark in the history of medicine, art, and printing. It is in their resulting images where Cushing's Utopian vision may still have credence:

*But let us hope that by A.D. 2342 peace and goodwill among the nations will have come to stay and that someone interested either in the engraver's art of the late Renaissance, or in medical history of that time, will again rediscover and print...another memorial volume, possibly in some universal language as yet unknown to us.*⁵³

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REFERENCES

1. Kemp, M. (1970). A Drawing for the *Fabrica*; and Some Thoughts upon the Vesalius Muscle-Men. *Medical History* 14, 277-288.
2. Guerra, F. (1969). The Identity of the Artists Involved in Vesalius's *Fabrica* 1543. *Medical History* 13, 1, 37-50.
3. Cushing, Harvey. (1943). *A bio-bibliography of Andreas Vesalius*. New York, Schuman's.
4. Wiegand, W. (1952). Marginal Notes by the Printer of the *Icones*. *Three Vesalian Essays to Accompany the "Icones anatomicae" of 1934*. New York, Macmillan.
5. O'Malley, C. (1964). *Andreas Vesalius of Brussels, 1514-1564*. Berkeley, University of California Press.
6. Vons, J and Velut, S. (2008) *André Vésale: Résumé de ses livres sur la fabrique du corps humain*. Paris, Les Belles Lettres.
7. Goree, J. (2014). The Woodblocks of Vesalius and the Printings: From the Renaissance to the Modern Era. *Printing History* 16, 3-41.
8. Donaldson, I. M. (2012). *Andreae Vesalii Bruxellensis Icones anatomicae. Part 2. The Journal of the Royal College of Physicians of Edinburgh*, 42(3), 280-282.

⁵³ Cushing, 108.

9. Malloch, A. (1933, February 2). [Letter to William Francis]. William Willoughby Francis Papers. McGill Library, McGill University, Toronto, Canada.
10. Vesalius, A. (1543). *De humani corporis Fabrica libri septem*. Basel: Oporinus.
11. Vesalius, A. (1543) *De Humani Corporis Fabrica Librorum Epitome*. Basel: Oporinus,
12. Vesalius, A. (1543) *Von des menschen coerpers Anatomey* (A. Torinus, Trans.). Basel: Oporinus. (Original work published 1543). Images Retrieved from http://www.e-rara.ch/bau_1/content/titleinfo/691196.
13. Vesalius, A. (1546). *Epistola, rationem modumque propinandi radices Chymae decocti ... pertractans et praeter alia quaedam, epistolae cujusdam ad Jacobum Sylvium sententiam recensens, veritatis ac potissimum humanae Fabricae studiosis perutilem: Quum qui hactenus in illa nimium Galeno creditum sit, facile commonstret...* Basel: Oporinus.
14. Vesalius, A. (1555). *De humani corporis Fabrica libri septem*. Basel: Oporinus.
15. Maschenbauer, A., & Vesalius, A. (1723). *Andrae Vesalii Bruxellensis, dess ersten und besten Anatomici, Zergliederung dess menschlichen Körpers : oder Verfass der Anatomiae, insofern dieselbe Mahlern und Bildhauern, ja insgemein allen und jeden Künstlern, welche nach der Natur, und von Bildern was aufzureissen und zu seichnen haben : ingleichem auch denen der Medicin und Chirurgie zugethanen sehr dienlich und erwünscht ist : diese Figuren sind von dem berühmten Mahler Titian gezeichnet*. Augsburg: Maschenbauer.
16. Leveling, H. P., & Vesalius, A. (1783). *Anatomische Erklärung der Original-Figuren von Andreas Vesal: Samt einer Anwendung der Winslowischen Zergliederungslehre in sieben Büchern*. Ingolstadt: Attenkhauer.
17. Roth, M. (1895). Vesaliana. *Archiv für pathologische Anatomie und Physiologie und für klinische Medicin*, 141(3), 462-478.
18. Vesalius, A. (1934). *Andrae Vesalii Bruxellensis Icones anatomicae, ediderunt Academia medicinae nova-eboracensis et Bibliotheca Universitatis monacensis*. Munich: Bremer Press.

For more recent publications on the history of the woodblocks see:

1. Chevallier, Jacques. 'La destinée des bois de la *Fabrique* de 1543' in Jacqueline VONS (ed.), *La Fabrique de Vésale. La mémoire d'un livre. Actes des journées d'étude des 21 et 22 novembre 2014*, Paris, Bibliothèque Interuniversitaire de Santé, [2016], pp. 177-215, ill. <http://www.biusante.parisdescartes.fr/histoire/vesale>

2. Dietrich, Dagmar. 'Der flämische Anatom Andreas Vesalius (1514-1564), seine Verbindungen nach Augsburg und das Epitaph des Medicus Cyriacus Weber in Landsberg am Lech' in John Roger Paas, Josef H. Biller, Maria-Luise Hopp-Gantner (eds.), *Gestochen in Augsburg. Forschungen und Beiträge zur Geschichte der Augsburger Druckgrafik. Hommage à Wolfgang Seitz zum 90. Geburtstag 2011 und Festgabe zum 40. Jahrestag des von ihm gegründeten Augsburger Forscherkreises 1973-2013*, Augsburg, Wizsner-Verlag, 2013, pp. 33-60, ill.
3. Plewig, Gerd. 'Andreas Vesalius. Das Buch der medizinischen Bücher und die Universität München' in *Medizin + Kunst. Das Kunstmagazin für den Arzt*, 2012, pp. 18-22, ill. http://www.medizin-unst.de/archiv/2012/MK_4.12_%20202039_Inhalt_17.pdf

Figure/Photograph Citations:

1. Images of the frontispiece and skeleton from *Von des menschen coerpers Anatomey* - Courtesy: US National Library of Medicine
2. Images from *Anatomische Erklärung der Original-Figuren von Andreas Vesal: Samt einer Anwendung der Winslowischen Zergliederungslehre in sieben Büchern* - Courtesy of the Clendening History of Medicine Library, University of Kansas Medical Center.

Table 1: Location of the Woodcut images printed from the woodblock discussed in the article (See Figures 1 to 6)

1543 <i>Fabrica</i> Page Number & Block Description	<i>Fabrica</i> (1543)	<i>Epitome</i> (Latin) (1543)	<i>Epitome</i> German (1543)	<i>China Root</i> <i>Epistle</i> (1546)	<i>Fabrica</i> (1555)	Maschenbauer (1706)	Leveling (1783)	Bremer (1934)
Pondering Skeleton Pg 164	•	•	•		•	•	•	•
Third Muscle Figure Pg. 178	•				•	•	•	•
Fold-out Figure Pg. 313	•	•	•		•		•	•
1543 Frontispiece	•	•	•				•	•
1555 Frontispiece					•			•
Portrait	•	•	•	•	•			• (facsimile)

Table 2: Estimate of Vesalian Woodcut Impressions from 1543 to 1934

Date	Author	Publisher	Location	Title	Impr.
1543	Vesalius	Oporinus	Basel	<i>De Humani Corporis Fabrica libri septem</i>	600
1543	Vesalius	Oporinus	Basel	<i>De Humani Corporis Fabrica. Librorum Epitome</i>	600
1543	Vesalius	Oporinus	Basel	<i>Von des menschen coerpers Anatomey...</i>	300
1546	Vesalius	Oporinus	Basel	<i>Epistola, rationem modumque propinan- di radicis Chymae decocti...</i>	300
1555	Vesalius	Oporinus	Basel	<i>De Humani Corporis Fabrica. Librorum Epitome</i>	600
1555	Vesalius	Oporinus	Basel	<i>De Humani Corporis Fabrica libri septem</i>	(1)
1706	Maschenbauer	Maschenbauer	Augsburg	<i>Zergliederung dess menschlichen Körpers...</i>	500
1723	Maschenbauer	Maschenbauer	Augsburg	<i>Zergliederung dess menschlichen Körpers...</i>	500
1781	Leveling	Attenkhauer	Ingolstadt	<i>Anatomische Erklärung...</i>	320
1783	Leveling	Attenkhauer	Ingolstadt	<i>Anatomische Erklärung...</i>	1180
1934	Vesalius	Bremer	Munich	<i>Icones Anatomicae...</i>	615

Estimate: 5516

SAŽETAK

Cilj ovoga rada bilo je istraživanje povijesti drvoreza koje je 1542. godine izradio Andreas Vesalius (1514.–1564.). Izrezbareni od strane venecijanskog umjetnika na pločama kruškino-ga drveta, drvorezi su korišteni u Baselu za tiskanje Vesaliusovih djela *De Humani Corporis Fabrica* i *Epitome* iz 1543. godine, *Traktata o kineskom korijenu* (1546.) te naslovnice izdanja *Fabricae* iz 1555. godine. Matrice su ostale sa tiskarom Oporinusom u Baselu do njegove smrti 1568. godine, nakon koje su prodani obitelji Froben. Nakon toga se ponovo pojavljuju 1706. godine u publikaciji Maschenbauera da bi ih potom koristio Leveling 1783. godine. Nepotpuni set drvoreza premješten je iz Ingolstadta u Landshut, a zatim u Minhen, gdje ih je 1885. godine dokumentirao Roth. Na prijedlog američkoga liječnika Samuela Lamberta Sveučilište u Minhenu pronašlo je "izgubljene" drvoreze na tavanu. To je navelo Wiega i Medicinsku Akademiju grada New Yorka da 1934. godine objave drvoreze u *Icones Anatomicae*. Drugo izdanje naslovnice vraćeno je u Lowain, gdje je uništeno u bombardiranju 1940. godine, da bi svi preostali drvorezi bili uništeni u savezničkim bombardiranjima između 1943. i 1945. godine. Tako su Vesaliusovi drvorezi prošli četiristoljetno putovanje od svojega stvaranja, preko osam izdanja s preko 5000 otisaka, do svojega tragičnoga uništenja.

Ključne riječi: anatomija; popis; disekcija; *Epitome*; *Fabrica*; ljudski; Vesalius; tiskanje; ilustracije; liječnici; sveučilišta.