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Mini Review

Hans von Gersdorff and Hans Wechtlin; when battlefield surgery and anatomy met art

Anastasios Vasilopoulos, Gregory Tsoucalas^{ID}, Vasilios Thomaidis, Alik Fiska

History of Medicine, Anatomy Department, Medical School, Democritus University of Thrace, Alexandroupolis, Greece

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Abstract

Hans von Gersdorff was an experienced German battlefield surgeon born in Strasbourg. His book "Feldbuch der Wundartzney" put him in history of medicine's hall of fame, since it introduced new methods of treatment for gunshot wounds and lower limb amputations, all depicted with fine illustrations. Hans Wechtlin, the artist who engraved some of the first anatomical fugitive sheets, was the engraver who undertook the task to help Gersdorff present his book. Gersdorff's treatise included two of the illustrious sheets; the skeleton and the dissected body, depicting one of the first human dissection in the 16th century. This work marked the era when anatomists, surgeons and gifted artists began to create anatomy atlases.

Keywords: anatomy, atlas, dissection, Germany, medicine

Introduction

Anatomical atlases are the indispensable companion of medical students and physicians throughout the modern ages. However, illustrations were not included in the anatomical manuscripts up to 1521, as physicians neglected icons as part of their training. Moreover, an accurate anatomical depiction of the human body was not possible, since human dissections were prohibited by the church. In early medieval Europe, medical knowledge derived from the Arab medical texts, which bore no illustrations too, as human dissection and pictorial representations of it were also prohibited by Islam law. Thus, anatomy in early medical schools was mainly constricted to the writings of Galenic-Arabic canon [1].

Human body dissections finally became possible during the fourteenth century. However, the need for anatomy illustration was still fade and human anatomy texts, such as Mondino de Luzzi's (ca 1270-1326) "Anathomia" in 1316, were published without anatomical images [1]. Anatomy was always connected to surgery, comparative animal studies and art. Artists always desired to create accurate a natomic representations as in a marble statue, a terracotta figurine or a painting. This desire was probably the reason why anatomy was a course in the Schools of Fine Arts and not in Medical Schools [2]. Soon, pioneering minds of the era decided to combine anatomy texts and art to create modern anatomic textbooks for both the physicians and surgeons. Guido da Vigevano de Pavia (1280-1349) was the physician

Address for Correspondence: Gregory Tsoucalas, lerolochiton str 155, P.C. 38334, Agioi Anargyroi, Volos, Greece.
E-mail: gregorytsoucalas@yahoo.gr

DOI:

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who first introduced the concept of using drawings in anatomy, establishing a close relationship between anatomical studies and artistic drawings. Anatomical illustrations during the late middle ages were mostly unrealistic and rudimentary, while sometimes the personal touch of each artist or anatomist created diversity in anatomic structures [3,4]. In the Arabic world, the most illustrious example was the illustrated medical treatise of the Turkish surgeon Şerefeddin Sabuncuoğlu (1385-1465). Şerefeddin was a great calligrapher and illustrator who presented the first textbook with iconography in Turkish-Islamic medicine, his masterpiece "Imperial Surgery" [5]. Our paper endeavors to present such a case and introduce Hans von Gersdorff (ca 1455-1529), an unappreciated German battlefield surgeon and Hans Wechtlin (ca 1480-mid 16th century) a neglected German Renaissance artist. With their work, they managed to set the foundations of anatomical engravings and strengthened the bond between anatomy, surgery and art.

Hans Wechtlin, the artist

Little is known about the life of Hans Wechtlin. His birthplace is unknown, but he lived in Basel and was a student of the German painter Hans Holbein the Younger (ca 1497-1543). He was also known under the name Johann Ulrich Pilgrim, an artistic pseudonym at the start of his career [1]. He was an engraver, a master of chiaroscuro woodcuts. German humanist Sebastian Brant (1458-1521) committed Wechtlin to produce the woodcuts for his work "Virgil's Aeneid". Wechtlin created 135 illustrations of unparalleled beauty, rendering Brant's treatise to the most influential illustrated book ever produced [5]. He was the first to create the most luxurious cranial depiction of all times, a woodcut being reproduced until nowadays the "Skull Within an Ornamental Frame" [6] [Figure 1].



Figure 1. Skull Within an Ornamental Frame, woodcut engraving, originally handcrafted by Wechtlin in 1512.

During the first official human dissection permitted in the city of Strasbourg in 1517, Hans Wechtlin created a woodcut titled "Ein contrafact Anatomy der inneren Glyderen des Menschen" depicting his observations [Figure 2]. His depiction represented a frontal view of a dissected body with a large thoracoabdominal opening. It was further enriched with seven smaller drawings surrounding the main one, six of which represented views and structures of the brain and one of the tongue. The dissected body was that of a man condemned to hang. The director of the dissection was Wendelin Hock von Brackenaw (ca 16th century), who mastered anatomy in the University of Bologna [7]. The woodcut of the dissected body was later included into Gersdorff's book "Feldbuch der Wundtartzney" (English: Fieldbook of surgery for the Wound man-The skeleton and the dissected body) published in 1517 [Figure 3] by Johan Schott in Strasbourg. This

work inspired engravers and publishers towards a new kind of anatomy books containing vivid representations of the areas of the human body in the study [8].

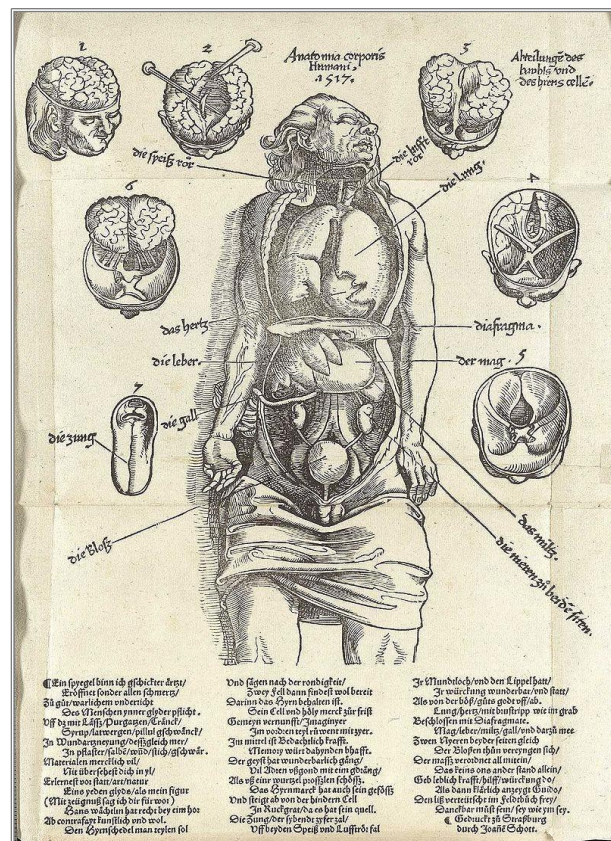


Figure 2. The dissected man, created by Hans Wechtlin in Strasbourg in the early 16th century, included in "Feldbuch der Wundtartzney", 1517.

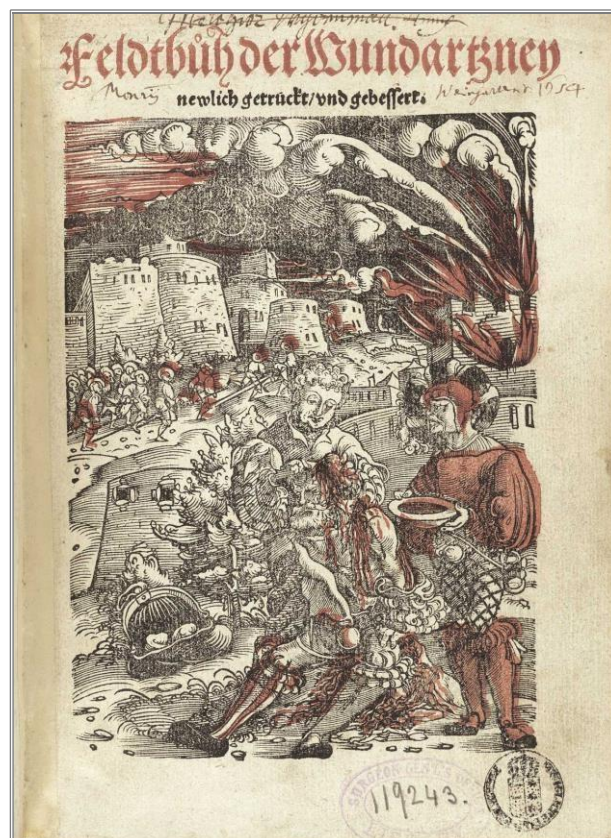


Figure 3. Gersdorff's book "Feldbuch der Wundtartzney" (English: Fieldbook of surgery), front page, Strasbourg, 1517.

Hans Von Gersdorff, the surgeon

Hans von Gersdorff was a battlefield surgeon, having more than forty years of experience during various war campaigns. He was born in Strasbourg [9], but the school where he had received his education remains unknown [10]. Gersdorff lived in a period when German medicine was not in the centre of medical evolution, which was taking place in the Italian peninsula and France. At that time, Gersdorff, along with German surgeon, botanist and alchemist Hieronymus Brunschwig (ca 1450-1512) undertook the responsibility of bringing the scientific light to the darkness covering German medicine. After years of studying, experimenting and practicing, he had decided to publish his personal experience for the benefit of the physicians of the era. His masterpiece, "Feldbuch der Wundartzney" was dedicated to the treatment of battle injuries like gunshot wounds, limb amputations and deep wounds of the thorax [Figure 4], it was printed by the German publisher and printer Johann Schott (16th century) in Strasbourg [9].



Figure 4. Wound cauterization (left side) and lower limb amputation (right side), "Feldbuch der Wundartzney", Strasbourg, 1517.

Discussion

Some researchers believe that Gersdorff's work was based on the lengthy and influential treatise on surgery titled "Chirurgia Magna", written in Latin by the great French surgeon Guy de Chauliac (ca 1300-1368) [10]. Two main innovations were introduced in his book. Firstly, the use of woodcut illustrations created by Hans Wechtlin, which granted an atmosphere of a "premature" anatomical atlas, and secondly the language of the text, which was vernacular German. The use of German indicates that the readership of the book was mainly the German battlefield surgeons of the time, who could not speak Latin, rather than the Latin-speaking academic physicians. Moreover, illustrations depicting surgical procedures, like limb amputation and wound cauterization, accompanied by a text describing the operation, attracted further attention. Gersdorff's book became the first surgical manual showing and describing surgical procedures in a realistic manner and the first book depicting a surgical amputation. Apart from the surgical procedures, it contained a series of chapters on anatomy and diagnosis and treatment of leprosy. A glossary of medical terms was also included. Latin terms like "fistula" had been translated to German and in some cases adapted, as in this case into "fystel" in the German language. Greek terminology had been also included and known ancient Greek words entered German medicine, like "apoplexia", "metacarpus" and "arteria" [11,12]. Gersdorff was the first surgeon in the history of medicine to describe the surgical technique of leg amputations, presenting more than 200 cases. With his work, he helped the education of his German colleagues, while he had introduced a new type of "printed" anatomy for all Europeans [9].

Epilogue

Illustrations constitute an essential learning tool in modern times among all medical practitioners. However, anatomic depictions into medical texts were not in vogue until the permission of human body dissections in the Western European world. Anatomy illustrations connected somehow physicians' imagination with real anatomy and reduced the gap between the "in blind" operation and "step by step" surgical procedure. Hans von Gersdorff and Hans Wechtlin not only brought German medicine into the map but gave the western world one of the first surgical-anatomy atlases.

Conflict of interest

The authors have no conflict of interest to declare.

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