SciMedCentral

JSM Neurosurgery and Spine

Review Article

The 16th Century Anatomist Carolus Stephanus and his Contributions to Neuroanatomy

Isaiah Tubbs[1], Marios Loukas[2] and R. Shane Tubbs[1,2]*

[1]*Pediatric Neurosurgery, Birmingham, USA*
[2]*Department of Anatomical Sciences, St. George's University, Grenada*

Abstract

Although considered an excellent anatomist, Carolus Stephanus is unknown to many and moreover, his contributions to the early understanding of neuroanatomy are mostly lost to history. This 16th century French anatomist was partially taught by Sylvius and was the classmate of Vesalius. He was a prolific writer but most of his work and research were overshadowed by Vesalius. His contributions to neuroanatomy included detailed descriptions of the optic chiasm, hippocampus, spinal cord and spinal nerves. The current paper reviews the life and works of this forgotten anatomist and his contributions to neuroanatomy.

***Corresponding author**

R. Shane Tubbs, Department of Anatomical Sciences, St. George's University, Grenada, Pediatric Neurosurgery, Birmingham, USA, Email: Shane.tubbs@childrensal.org

Submitted: 31 October 2013

Accepted: 29 November 2013

Published: 05 December 2013

Keywords

- Anatomy
- French
- Neuroanatomy
- Pre-Vesalian
- History

INTRODUCTION

Carolus Stephanus also known as Charles Éstienne (c.1504-1564) although regarded by some as in the first rank of anatomists, he is unknown to many [1,2]. Stephanus was the son of Henri Estienne who was the founder of the French school of scholar printers who died in 1520. Stephanus took over the family printing house and became a prominent publisher and employed moveable type for his publications although this technique was not generally used for medical literature until the end of the 15th century [3]. Following his father's death, his mother married Simon de Colines, another printer, who later published Stephanus's anatomical atlas. After learning Greek under Jean Lascaris, he attended the University of Padua. While in Italy (1530–1534) he became interested in botany, horticulture, and medicine [2]. After returning to Paris, he attended lectures given in anatomy and medicine by Sylvius at the Colléege de Tréguier. His literary activity started in 1535 with three abstracts based on the works of the diplomat Lazare de Baïf. He obtained his degree in medicine in Paris in 1542. His principal works were *De dissectione partium corporis humani libri tres* (1545), an anatomical work illustrated with approximately 60 woodcuts (Figure 1), *Dictionarium historicum ad policum* (1553), said to be one of the first French encyclopedias, *Praedium Rusticum* (1554), a collection of works on ancient agriculture, and *Thesaurus Ciceronianus* (1557). *De dissectione partium corporis humani libri tres, una cum figures et incisionum declarationibus a Stephano Riveria* a Latin text, was followed by a French translation the next year but was actually begun around 1530 and interrupted by a dispute (*ob enatam controversiam*) in 1539 [4]. The essence of the dispute was that the surgeon and anatomist Etienne

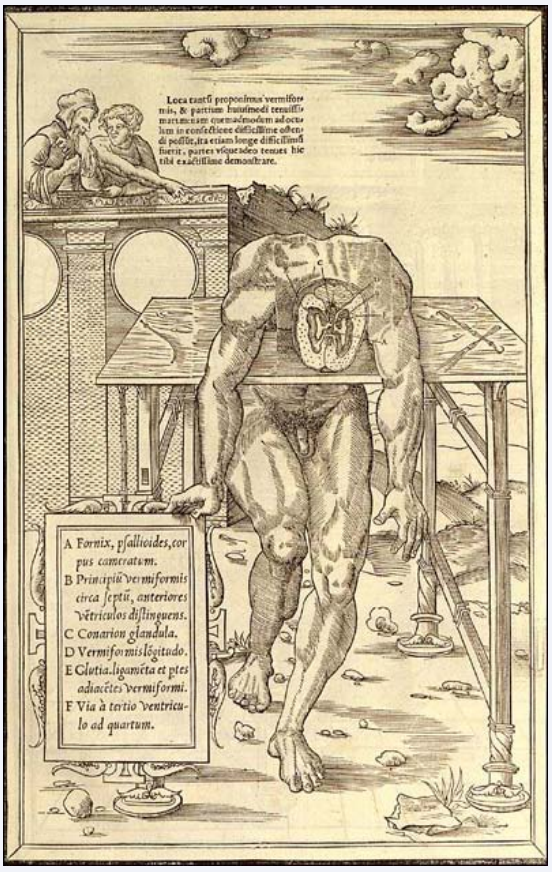

Figure 1 from the anatomy book of Stephanus demonstrating the cranial cavity and its contents.

de la Rivière brought Stephanus to court and the result was that Stephanus was required to credit Rivière in his text for anatomical preparations and figures. Some have described this text as "…the most fully illustrated of the pre-Vesalian anatomies and is a landmark publication as one of the finest anatomical works of the 16th century" [3] and the first text to illustrate step-by-step dissections. Stephanus had complained of plagiarisms that had been published of his anatomical text particularly in Germany (*a cause d'ung proces qui survint*). Interestingly, it was Rivière who claimed that Stephanus has plagiarized his work. Some have alluded to the fact that Vesalius had seen this work as it was prepared in the mid-1530's while he was in Paris [3]. However, his text did not make it to press until two years after the publication of Vesalius's *Fabrica.* This book on anatomy was so popular that it was published again in 1575 [5]. Some have mentioned that the book was popular beyond the academics of the day due to the often erotic positions used in the illustrations. This may have been used as a marketing ploy to sell copies outside of the local universities.

Stephanus was a classmate of Vesalius and the two were both pupils of Sylvius. At this time, the only illustrated manual of dissection available was the writings of Berengario da Carpi. Therefore, there was a significant need for accurate drawings of the human form. Interestingly, Stephanus began his anatomical book prior to the publication of the *Fabrica,* which was published in 1543 [6]. Stephanus, like Vesalius, had been imbued with Galenic tradition and was influenced by the same teacher, Jacques Dubois Sylvius (1478-1555) [7]. Stephanus himself was a humanist, from a famous French humanist family, and his interest in anatomy was largely directed at clarifying its nomenclature [2]. In his *De dissectione partium corporis humani libri tres,* Stephanus offers probably one of the first descriptions of venous valves when he comments on the "apophyses membranarum" in the veins of the liver [8]. However, their function was a mystery to him. He made several good descriptions of the clavicular joints, spine and its ligaments, and the temporomandibular articulation [4]. He was the first to trace blood vessels into the substance of bone [7]. He first described what is now known as Glisson's capsule of the liver and recognized that the esophagus and trachea were different organs [1]. Additionally, his text emphasized the parotid, lacrimal, thymus, and lymphatics at the root of the mesentery, and the armpit and groin [4].

Stephanus made many descriptions of the human nervous system. For example, he described the optic chiasm and hippocampus [9] and illustrated these and many other intracranial structures often with great accuracy. Many of his plates demonstrated the step-by-step removal of the coverings of the brain (Figure 2) and underlying intracranial contents. For example, he very accurately described the cerebral ventricles and illustrated them in his anatomy text (Figure 1). Most remarkable of his observations was that of the central canal of the spinal cord. He mentioned that Galen had not described all of the spinal nerves [7] and added to our knowledge of the neuroanatomy of the spinal column with descriptions of this morphology.

The images in Stephanus's anatomical book are derived from life, following dissections carried out by he and possibly Etienne de la Rivière [3]. Stephanus's anatomical illustrations vary considerably in quality with most regarding the nervous system being some of the most illustrative of his day. However, other earlier plates are clumsier and perhaps follow the older Venetian-Paduan examples [4]. The latter plates approach the bold style of Buonarroti. Small wood blocks depicting the detailed results of actual dissections are inserted carefully into already existing larger blocks that show nudes, both male and female, in heroic poses in a variety of classical landscapes, exposed on marble seats or propped up against trees. Whether, as some have suggested, the printer Simone de Colines was simply using a set of blocks originally prepared for a totally different book is not clear. Others have argued that the classical background is deliberate, evoking the antiquity of dissection, and transmuting the gruesome horror of the detail of a corpse to the heroic world of the Greeks and Romans or of the gods themselves. Nonetheless, his anatomical work offers a great variety of images of parts of the body, most of them new when they were cut, some even going beyond what Vesalius would present in the *Fabrica*. For example, Stephanus's description and drawings of the human sternum were very descriptive and refuted most Galenic teachings although many of his descriptions repeated Galenic errors. In 1561, Stephanus became bankrupt and soon after, was convicted of heresy. He died in prison in 1564 [10]. It is the classic work of such anatomists as Carolus Stephanus, which challenged Galenic thought and served as the basis of our current neuroanatomical knowledge. Stephanus attempted to obtain an objective picture of the human form [7].

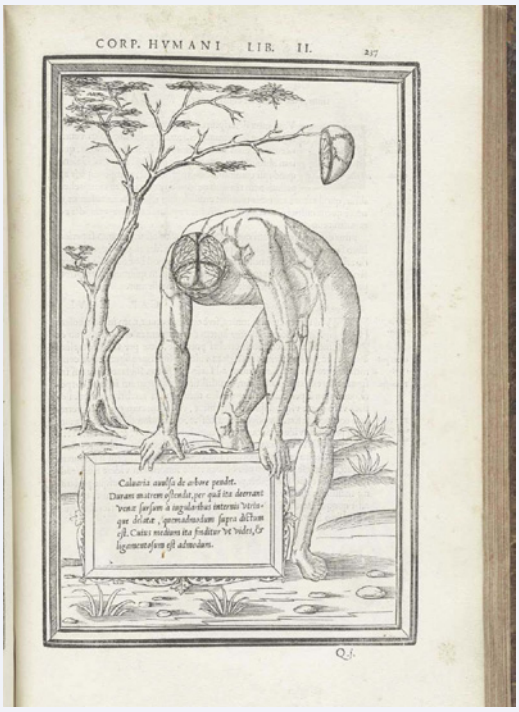

Figure 2 from the anatomy book of Stephanus demonstrating the cranial cavity and its contents.

REFERENCES

1. Eycleshymer AC. Anatomical Names. New York: William Wood & Company. 1917.

2. Tubbs RS, Salter EG. Charles Estienne (Carolus Stephanus) (ca.1504-1564): physician and anatomist. Clin Anat. 2006; 19: 4-7.

3. Bower F. A Renaissance illustrated anatomical book. Australian New Zealand J Obst Gyn. 2004; 44: 378-379.

4. Choulant L. History and Bibliography of Anatomic Illustration In its relation to Anatomic Science and the Graphic Arts. Translated by Frank M. University Chicago Press, Chicago. 1920.

5. KELLETT CE. TWO ANATOMIES. Med Hist. 1964; 8: 342-353.

6. Mumey N. Quartercentenary of the Publication of Scientific Anatomy. Denver: Range Press. 1944; 1543-1943.

7. RATH G. (CHARLES ESTIENNE: CONTEMPORARY OF VESALIUS.) Med Hist. 1964; 8: 354-359.

8. Scultetus AH, Villavicencio JL, Rich NM. Facts and fiction surrounding the discovery of the venous valves. J Vasc Surg. 2001; 33: 435-441.

9. Flamm ES. Historical observations on the cranial nerves. J Neurosurg. 1967; 27: 285-297.

10. Packard FR. Life and times of Ambroise Pare. New York: Paul B. Hoeber. 1921; 1510-1590.

Cite this article

Tubbs I, Loukas M, Tubbs RS (2014) The 16th Century Anatomist Carolus Stephanus and his Contributions to Neuroanatomy. JSM Neurosurg Spine 2(1): 1014.