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Commemorating the Fabrica of Vesalius

R.	O'Rahilly
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Institut für Anatomie und Spezielle Embryologie, Universität Freiburg, Schweiz

Key Words

Fabrica

Vesalius

History of anatomy

Abstract

It is an appropriate time to commemorate the *Fabrica* of Andreas Vesalius, which was published in Basel 450 years ago. In addition, a dozen key references in English (books and articles) are listed for those who wish to learn more about Vesalius and particularly concerning the wonderful woodcuts in the *Fabrica*.

Prof. R. O'Rahilly, Rue du Coteau 57, CH-1752 Villars-sur-Glâne (Switzerland)

Introduction

This year, 1993, is the four hundred and fiftieth anniversary of the publication in Basel of a landmark in the recognition of human anatomy, an unprecedented blend of pictorial representation, scientific exposition and typography. The full title of the book by Vesalius is *De humani corporis fabrica libri septem*, the key word *Fabrica* being later translated variously as the fabric, the structure or (more properly, according to Singer) the workings of the human body in seven books.

The *Fabrica* and Its Author

The author of the *Fabrica*, Andreas Vesalius (1514-1564), 'belongs to many countries. His family came from Wesel in Lower Germany, moved later to Nymwegen in the Netherlands. He was born in Brussels... studied medicine in France, was a professor in Italy, printed his book in Switzerland, was a physician to the imperial court in Spain and died on a Greek island' [Sigerist, 1943]. 'Vesalius was a very characteristic product of his age', wrote Singer [1925], who stressed the importance of Galenic science and the new Art. 'When these two had come together there had to be a Vesalius' [Singer, 1925].

In 'Commemorating Andreas Vesalius' on the four hundredth anniversary of the book in 1943, the renowned Swiss medical historian Henry Sigerist (1891-1957) emphasized that the *Fabrica* 'marked a turning point in the history of medicine, or rather, it was the starting point of a new medical science'. Indeed, 'upon the foundation of human anatomy a new anatomical physiology was built during the 17th century, a new anatomical pathology during the 18th century' [Sigerist, 1943].

Many aspects of the *Fabrica* and of its author, however, remain controversial. While fully admitting the importance of the *Fabrica*, a tendency towards hero worship is to be avoided. It needs to be kept in mind that Vesalius' interest in anatomy was descriptive and topographical. Cole [1944] stressed the debt of Vesalius to Galen and to Galenic physiology. He remarked (citing Richardson) that the whole mechanism of the circulation was laid bare by the hand of Vesalius, and yet the idea of a circulation remained hidden to him. It took an additional 85 years

before the circulation of the blood was published by ‘little Doctor Harvey’ in 1628. Ivins [Lambert et al., 1952] has argued that the *Fabrica* was not ‘a lightning stroke of genius, suddenly and for the first time illuminating a subject that had previously been enveloped in dark night...’ but ‘rather it was a normal step in an evolution that had been under way for many years...’. Nevertheless, in an effort ‘to restore a proper balance’, O’Malley [1964] insisted that even ‘more important than the anatomical information contained in the *Fabrica* were the pedagogical methods and scientific principle Vesalius enunciated. These were beyond criticism and immediately fundamental to medical research and its demonstration, and remain so.’

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Vesalius rightly believed in the importance of osteology as the basis of anatomical study, and he set out to ‘explain in detail the nature of all the bones and cartilages, how they support the other parts of the body, the description of which follows; it is by them that the student’s knowledge of anatomy should begin’ [Vesalius, 1543]. The *Fabrica* includes superb plates of the musculoskeletal system. Indeed, it is generally agreed that the glowing strength (‘die zündende Kraft’) of the book lies in its illustrations, which constitute a revolution in the pictorial statement of anatomical observations.

The teacher of Vesalius, Jacobus Sylvius (1478-1555), has been called the founder of anatomical nomenclature [Elze, 1949], and Vesalius himself also made a contribution [Streudel, 1943]. He likened the appendix to a worm (ver-miformis) and introduced, in their modern connotation, a number of anatomical terms, including atlas (for C7, however, rather than for C1), alveolus (a compartment in a honeycomb, for a tooth socket), choana (a funnel, for each posterior nasal opening), incus (an anvil) and mitral valve (shaped like a bishop’s mitre).

Additional Reading

The reader of English should find the following books and articles of considerable interest. A series of documents and translations bearing on pre-Vesalian anatomy has been produced by Lind [1975]. The standard biography of Vesalius is an interesting and balanced account in 480 pages by O’Malley [1964]. The second edition of a very attractive bio-bibliography by Cushing appeared in 1962. The fascinating notes of a medical student who attended lectures and demonstrations by Vesalius have been published in their original Latin with a facing translation into English [Eriksson, 1959]. The plates of a brief atlas by Vesalius, the *Tabulae sex*, have been reproduced and given a very learned commentary by Singer and Rabin [1946]. A short work by Vesalius, the *Epitome*, has been translated by Lind [1969]. The wonderful illustrations from the *Fabrica* (and also those of the *Tabulae sex* and the *Epitome*) have been compiled by Saunders and O’Malley [1950] in a book that should be in the possession of everyone who studies anatomy.

A number of interesting and sometimes controversial aspects are discussed in some of the above-mentioned books and also in the Vesalian essays of Lambert et al. [1952]. These matters include the well-known title page of the *Fabrica* (and the curious changes in it in the second edition, 1555), the printer (Johannes Oporinus of Basel), the woodcuts and their artist(s) from the atelier of Titian (for a

Fig. 1. Andreas Vesalius of Brussels at the age of 28 years (in 1542; from Vesalius, 1543). discussion of Jan van Kalkar, see Petrucelli [1971]), the superb views of the skeleton and the continuous landscape that serves as a background to the muscle figures, and the excessive emphasis on the anti-Galenism of Vesalius.' It has been proposed that the 14 muscular and the 3 skeletal plates are a *danse macabre* by Titian [Putscher, 1983, 1991]. In addition, a special study of Vesalius on the brain has been provided by Singer [1952]. Vesalius followed Galen in recognizing only seven pairs of cranial nerves. (The present arbitrary system of twelve pairs was introduced by von Sömmerring in 1778; see O'Rahilly [1988].) The Preface to the *Fabrica* was translated into English by Farrington [1932, 1957] and into French by Bakelants [1961]. Finally, it may be mentioned that what is claimed to be the oldest skeletal preparation in the world is believed to have been prepared by Vesalius and is now housed in Basel [Kurz, 1992].

'The commonly held opinion that Galen somewhat surreptitiously introduced animal findings as human anatomy was vigorously denied by the late Prof. CM. Goss, who translated a number of Galen's works in the 1950s and 1960s. The last translation (on bones) appeared posthumously in 1984.

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the microscopic web (Greek histos, whence histology) and on to the submicroscopic. Of such a vast terrain it can still be said, 450 years later, that anatomy is 'a branch... necessary, before any other, to the whole of medicine' [Vesalius,

Conclusion

The *Fabrica* is a remarkable book, and its greatly admired plates are still a delight to behold. Today the scope of anatomy has increased from the macroscopic fabric to 1543].

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