

Ole Worm (1588-1654) - anatomist and antiquarian

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SUMMARY

The main objective of this paper is to highlight the scientific life of Ole Worm (1588-1654), a Danish anatomist, who was an outstanding physician, but an antiquarian, historian, professor of pedagogy, Greek language and physics. He compiled a collection of various curiosities known as *Museum Wormianum*. He described accessory bones which occur within the skull, which are named Wormian bones after him.

Key words: Ole Worm (Olaus Wormius) – Wormian bones – Human Anatomy – Museum Wormianum

INTRODUCTION

The aim of this paper is to show the wide-ranging academic activity of Ole Worm, who was an outstanding physician, but also an anatomist, antiquarian, historian, professor of pedagogy, classical Greek and physics. The authors have researched information available to write this paper about some aspects of interest of the life of the versatile Ole Worm and his *Museum Wormianum*. This paper follows a line of research on people who have made contributions in education and learning of human anatomy and of other sciences.

CHILDHOOD AND EDUCATION

Ole Worm was born in Aarhus, Denmark, on 13 May 1588. He was the son of a wealthy family of

merchants that had emigrated from the Netherlands. His father was Willum Worm, who served as the Mayor of Aarhus, and who became a rich man by inheritance from his father. Ole Worm's grandfather Johan Worm, a magistrate in Aarhus, was a Lutheran who had fled from Arnhem in the Netherlands while it was under Catholic rule. At the age of 13 he was sent to stay with relatives in Germany in order to attend good schools. After attending the Grammar School of Aarhus, he studied Medicine and Botany at the University of Marburg in 1605, and received his degree as Doctor of Medicine from the University of Basel in 1611, where he studied with the noted anatomist, taxonomist and botanist Gaspard Bauhin. He also studied anatomy and surgery in Padua, Italy. He concluded his medical studies in France at Montpellier and Paris (Kardel, 1990).

PHYSICIAN AND PROFESSOR

Worm came back to Denmark and practiced medicine for a year, after which he returned to Basel to defend his thesis: *A Study of One Hundred Medical Controversies (Selecta contraversiarum medicarum centuria)*. He subsequently traveled to London, where he practiced medicine for more than a year. In 1613 he returned to Copenhagen where he was successively appointed professor of pedagogy, and was promoted to a professorship in Greek language in 1615. Worm received a Master of Arts degree from the University of Copenhagen in 1617, and in 1618 he became Dean of the University of Copenhagen. Ole Worm was advanced to a professorship in Physics in 1621 and in 1624 he was named Professor of Medicine, succeeding the famous anatomist Caspar Barholin. He provided medicinal plants for the botanical garden of the

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University of Copenhagen, attended dissections and prepared a guide for general practice and a medical textbook for students. Worm was also Professor of Natural Philosophy.

Ole Worm married Dorothea Fincke, the daughter of a friend and colleague, Thomas Fincke, a mathematician who invented the terms 'tangent' and 'secant'. The rest of his academic career was spent in Copenhagen, where he taught Latin, Greek, Physics, and Medicine (Kardel 1990). Ole Worm used, as was customary in his time, his Latinized name Olaus Wormius. From 1648 until his death, Worm corresponded with most of the important European scientist of his time. He was a physician at the court of King Frederick III of Denmark (1609-1670). Somewhat remarkable for a physician of the time, he refused to leave the city of Copenhagen during an epidemic of the Black Death, in order to minister to the ill. He died victim of this plague in 1654.

THE ANATOMIST AND THE WORMIAN BONES

In a letter written in Latin, dated in Copenhagen, Denmark in 1643 and addressed to his colleague and compatriot Thomas Bartholin, then at Padua, Italy, Ole worm made a detailed description of accessory or supernumerary bones which occur within the cranial suture and fontanelle, or isolated most commonly in the posterior sutures. After receiving this letter, Bartholin himself decided to baptize these bones as *Ossa Wormiana* (Wormian bones). Worm's letter was published by Bartholin in *Epistolarum medicinalium. Centuria I* in 1740 (Parker 1905). However, Wormian bones had been described in the past, before Ole Worm. The first description attributed to Hippocrates was mentioned by Paracelsus and by D'Andemach Gonthier, who described them in detail in 1574. Wormian bones are named in the international anatomical nomenclature as *Ossa Suturalia*. They are identified as A02.1.00.047.

These bones are detached portions of the primary ossification centers of the adjacent membrane bones in the skull. They can be divided in sutural, fontanelle's and isolated bones (Gray, 1974). Wormian bones knowledge is also of interest to the Human Anatomy, Physical Anthropology and Forensic Medicine imaging (Murlimanju, 2011).

THE ANTIQUARIAN AND HIS MUSEUM WORMIANUM

Ole Worm began collecting minerals first, then progressing to animals, plants, and objects created by man. This collection was completed between 1620 and 1654. Worm made an important contribution to academic studies in 1621, when he took over the chair in Physics and introduced demonstrated teaching using objects from his own collection. He shared with King Frederick III of Denmark

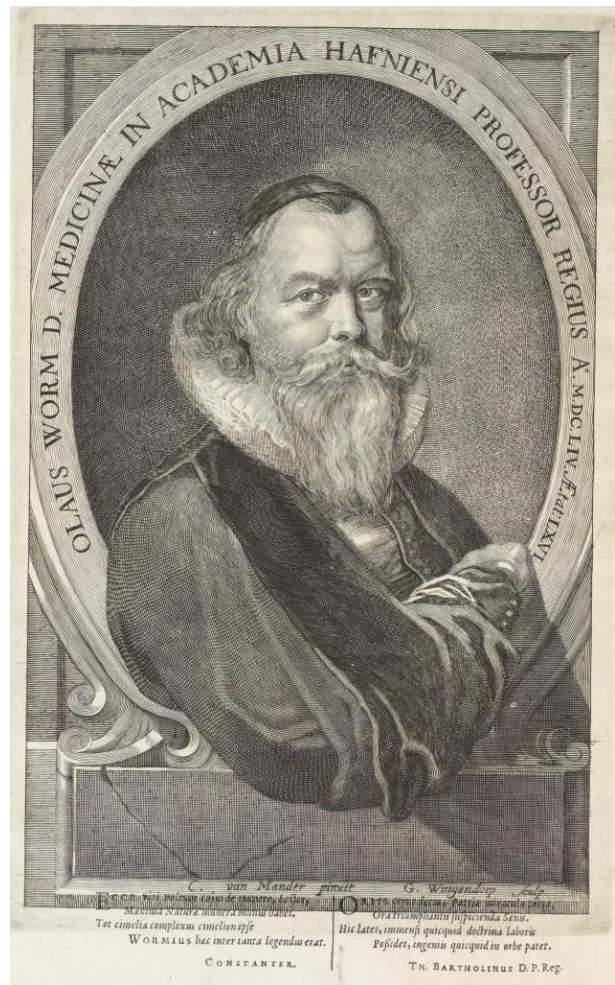


Fig. 1. Ole Worm (Olaus Wormius, 1588-1654). Portrait by Carl van Mandern from Museum Wormianum circa 1655. <http://ctgpublishing.com/ole-worm-portrait-and-room-illustration-of-museum-wormianum-circa-1655>.

this interest in collecting natural history objects. Worm bring the first detailed drawing of a Bird of Paradise proving that they indeed have feet like ordinary birds, despite much popular speculation to the opposite. He was among the first to establish that the "unicorn horn" and narwhal tusks were actually one and the same, as he explained in a dissertation he delivered in 1638.

Ole Worm also helped to determine that lemmings (Arctic rodents) did not generate spontaneously out of thin air, as was a common belief at the time. Worm's interests covered natural objects, human artifacts, mythical creatures and ancient inscriptions. His travels and regular written correspondence with other wealthy intellectuals created vast networks across Europe where the trading of information and artifacts was gaining popularity. He built one of the best-known curiosity cabinets in Europe. Olaus Wormius produced engravings of the objects collected in his house in Copenhagen. He also wrote his speculations about the objects' meaning. This material was compile in a catalog of the *Museum Wormianum* or *History of the Rarer*

Things both Natural and Artificial, Domestic and Exotic (Mcir 2013). This catalog was edited and published posthumously in 1655 by his son, Willem Worm (1633-1704). *Museum Wormianum* describes many of the curiosities included in the author's collection of ancient objects, gathered between 1620 and 1654. This collection included stuffed birds and fish, decorated ivory, shells, coins, water plants, dried plants, minerals, precious stones, native artifacts collected from North America, etc. This publication offers amazingly detailed descriptions of the objects. Being a physician, Worm very often included notes prescribing the medical uses of the objects. Aside from the scientific aspects, the main beauty of the catalog resides in the more than one hundred faithful woodcuts, illustrating the described objects. Some of these images have been copied from the earlier works of Aldrovandi, Mercati and Calceolari. Many are original ones made under Worm's supervision in Copenhagen. Included in the publication there is a fine portrait of Worm, aged 66 (Fig. 1); but the most notable illustration is the double page plate showing the interior of the museum, from which many individual objects can be identifiable. Particularly interesting in this engraving are the shark, the whale and the polar bear hanging from the room's ceiling.

THE FOUNDER OF DANISH RESEARCH INTO RUNES

Worm was not only an outstanding physician, he was also an assiduous antiquarian and historian. Also he earned national renown as the founder of Danish research into runes. Worm wrote a number of treatises on runestones and collected texts written in runic alphabet. Due to his interest on the runes, the King of Denmark wrote for Ole Worm letters of introduction to the bishops of Denmark and Norway. In 1626 Worm published his *Fasti Danici* (Danish Chronology), containing the results of his researches into runic lore; and in 1636 he published *Runir seu Danica literatura antiquissima* (Runes: the oldest Danish literature), a compilation of transcribed runic texts. In 1643 his *Danicorum Monumentorum* (Danish Monuments) was published. This is the first written study of runestones. This study is also one of the only surviving sources for depictions of numerous runestones and inscriptions from Denmark (Rosenberg, 2009).

DISCUSSION

After Worm's death in Copenhagen, Denmark, 7 September 1654, the edition of *Museum Wormianum* was made, probably at the request of the King Frederick III of Denmark. The King purchased Worm's collection soon afterward for its incorporation into the Royal Kunstkammer, where several of Worm's objects are still identifiable today (Schepelern, 1990). *Museum Wormianum* shows the dedication and care provided by its editor, Willem Worm, who was physician, professor of physics and royal librarian (Rodriguez, 1953). For more than a century after its publication, Worm's collection was a recognized textbook of archaeology, and it is still important as a summary of the scientific opinion on natural history, especially mineralogy and museology of the seventeenth century. Beyond his outstanding performance as physician and his contributions to natural history, Ole Worm laid the foundations of modern archaeological surveys, recommending the practice of assiduous collection of information from every archaeological site. Ole Worm was honored with a stamp issued by Denmark in 1988 to commemorate the fourth centenary of his birth.

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