

THE HORSE IN HISTORY

A FESTSCHRIFT IN HONOUR OF JOHN CLARK



Edited by
Emma Herbert-Davies
Anastasija Ropa

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A Festschrift in Honour of
John Clark

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Emma Herbert Davies

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The Horse in History: A Festschrift in Honour of John Clark

Eds. Anastasija Ropa, Emma Herbert Davies

eISBN 978-615-6696-57-1

Rewriting Equestrian History, vol. 9

ISSN 2676-8097

Responsible publisher: Teodora C. Artimon

<https://trivent-publishing.eu/39-rewriting-equestrian-history>

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First published in 2025 by Trivent Publishing

Trivent Publishing

1119 Budapest, Erele ut 59–61

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For more information, visit our website: <http://trivent-publishing.eu>

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INTRODUCTION: FESTSCHRIFT TO JOHN CLARK

Emma Herbert-Davies, Anastasija Ropa

Current scholars of the horse in history owe much to the pioneering authors of the late 1980s and the 1990s. Writers such as R. H. C. Davis, Ann Hyland, and Charles Gladitz opened the doors on the subject of medieval horses, and in 1995 John Clark made a major contribution with his seminal work *The Medieval Horse and its Equipment*.¹ This book was one of a series produced by the Museum of London and was based on archaeological finds in the city during the 1970s and 1980s. It illustrates and discusses over 400 objects associated with horses, from harness fittings and spurs to horseshoes and currycombs. Importantly, it also draws on historical as well as archaeological evidence to consider the role of horses in medieval London, their prices, sizes, and the horsemen associated with their function and care. *The Medieval Horse and its Equipment* served as an inspiration for many of the equine historians that followed in John's footsteps and still stands as a work of reference for archaeologists and scholars of animal history.

John's long and illustrious career began in 1967 as a member of staff at the Guildhall Museum (City of London). Ten years later he worked on its incorporation with the London Museum to form the Museum of London, playing a key role in the amalgamation of the medieval collections in both museums. John was instrumental in the computerization of the records in the Medieval Department and also in

¹ R. H. C. Davis, *The Medieval Warhorse: Origin, Development and Redevelopment* (London: Thames and Hudson, 1989); John Clark, *The Medieval Horse and its Equipment* (London: HMSO, 1995); Charles Gladitz, *Horse Breeding in the Medieval World* (Dublin: Four Courts Press, 1997); Ann Hyland, *The Horse in the Middle Ages* (Stroud: Sutton, 1999); Ann Hyland, *The Medieval Warhorse from Byzantium to the Crusades* (Stroud: Sutton Publishing, 1994); Ann Hyland, *The Warhorse 1250 – 1600* (Stroud: Sutton, 1998).

the updating of the medieval gallery in the late 1990s. He went on to produce several notable exhibitions including “Alfred the Great 849-899: London’s forgotten king” (1999) and “Chaucer’s Londoners: ‘a compaignye of sondry folk’” (2000). John was lead curator on the project to create the Museum’s new Medieval London gallery, which opened in 2005. Despite retiring as Curator Emeritus in 2009, John has remained a driving force: he was Honorary Reader at UCL Institute of Archaeology from 2012-2022; Chairman and President of the London and Middlesex Archaeological Society; a board member of the Association for the History of Glass; and served on many external committees, including the Society for Medieval Archaeology, the Standing Conference on London Archaeology, LAMAS’s Archaeology Committee, and the Southwark and Lambeth Archaeological Excavation Committee. Currently, John is on the editorial board of the *Rewriting Equestrian History* series published by Trivent. In addition to these numerous roles, John has also continued to research and produce publications on topics including the history and archaeology of medieval London, folklore and legends, as well as horses and their equipment in the Middle Ages.

Since the work of trail-blazing authors such as John, much scholarly work has been carried out on the historical horse and equestrianism. Subjects such as its cultural and economic significance, its size, equipment, and training, and the role of the warhorse as the public persona of the knight, have attracted much attention. The advancement in our understanding owes much to those who helped to bring the subject of the historical horse into the international spotlight. In 2016, Anastasija Ropa and Timothy Dawson organized a series of papers at the International Medieval Congress in Leeds and, over the following years, brought together a plethora of academics and independent scholars to disseminate their findings on ancient, medieval, and modern equines and equestrianism. John Clark was actively involved in this process and was conspicuous for his valuable contributions and his unflagging encouragement to new and established researchers.² It is a testimony to

² John’s generosity with his time and knowledge is apparent from the fact that he not only contributed a study of curb bits to the first edited volume produced as an outcome of the 2016 and 2017 horse history sessions at the IMC, but he also reviewed and proofread part of the articles in *The Horse in Premodern European Culture*, ed. Anastasija Ropa and Timothy Dawson (Berlin: De Gruyter, 2019). John has also contributed to our knowledge of medieval horse training, having first given a seminar paper at an online

the growth of interest in medieval equestrianism that the first AHRC-funded project on the Medieval Warhorse, conducted at Exeter University was launched in 2020. The research conducted by the project team has confirmed many of the hypotheses earlier proposed by scholars, including John, such as the argument that the medieval warhorse was of moderate size (by today's standard).³

This Festschrift therefore honours John and his role in both pioneering and contributing to our knowledge of the history of the horse. The volume covers a broad range of chronological periods from the Romans to the Elizabethan court and includes a diverse range of subject matter from equestrian equipment to horses in historical documents, literature and folklore. All the authors in this volume were selected for their recognition of John's contribution to the field and his role in inspiring them to expand on his early research. The chapters begin, perhaps appropriately, with several papers on equestrian equipment in archaeological finds, then move on to address the wider field of the horse in European contexts. Each chapter presents a new approach to the study of the horse in history; each stands as a testament to John's influence on the subject and on the people who had the privilege and pleasure to encounter him during their research.

In the first chapter, "Just a Bit Too Late: A High-Medieval Horse Bit from the Gleichberg in Thuringia," archaeologist Frederik-Sebastian Kirch and historian Victoria Haack investigate a remarkable hinged curb

event during Covid (John Clark, "Straight from the horse's mouth... in the teeth of the evidence," at "Hippiatric Treatises," a seminar hosted by the Latvian Academy of Sport Education, November 19, 2020, available at: <https://youtu.be/rgSKcZt2bG8?si=MNZPmS1xe31ByeW2> (accessed August 8, 2024)). He later reviewed and commented on the early drafts of the article by Jennifer Jobst about the training of young horses in Rufus's treatise, see Jennifer Jobst, "Horse Training in the Thirteenth Century: Insights from Jordanus Rufus," in *The Liminal Horse: Equitation and Boundaries*, ed. Rena Maguire and Anastasija Ropa (Budapest: Trivent: 2021). Discussions with John on the subject of Rufus's hippiatric treatise were indispensable for the shaping of Anastasija Ropa's article "Crossing Borders in Equestrian Training: Applying Jordanus Rufus's Advice on Training Young Horses Today," in *The Liminal Horse*, which reflects the author's experiment of using some of Rufus's methods in starting a young Warmblood sport horse under saddle. This was followed by a study by Ropa in training a feral horse using Rufus's methods.

³ The size of the warhorse has been the subject of studies by Jürg Gassmann, who summarised much of the earlier scholarship on the subject, and whose research started after reading John's *The Medieval Horse and Its Equipment*, a discovery journey whose trajectory Jürg traces in his contribution to the present volume.

bit found in 1937 at a mountain settlement in Thuringia, Germany. Drawing from John's work on bits excavated from medieval London and building on his more recent work on curbs, they discuss the chronological aspects of hinged bits and their function.⁴ Their careful analysis of the Thuringia bit offers new perspectives on a rare category of archaeological horse equipment and sheds light on the development of horse bits and their usage.

Robert Webley and Laura Burnett from the Department of Archaeology and History at the University of Exeter look at medieval fittings in "A Large Amount of Mounts: New insights into Medieval Equestrian Copper-Alloy Decoration." The use of horse harness decorations made from copper-alloy reached a high point *c.* 1300 alongside a rising fashion for heraldic decoration. This chapter summarises recent developments in our understanding of several of these mounts and considers where these items were worn on horse harnesses. Webley and Burnett also discuss the problems with identification before moving on to an in-depth exploration of a newly identified form of mount discovered in England.

Continuing the theme of equestrian equipment, Arkadiusz Michalak looks at an impressive iron spur in his chapter "A Late Gothic Spur from the Castle in Szprotawa, Poland." The castle was erected at the turn of the thirteenth and fourteenth centuries and remained in use until the seventeenth century. Excavations in 2021 revealed a spur with a U-shaped heel band. Michalak explains how comparative analysis and other archaeological evidence can be used to date these types of artifacts. The origin and form of the spur are discussed, and the author considers how it functioned both as an item of equestrian equipment and as a symbolic representation of the rider.

Moving away from archaeology and towards other types of historical evidence, Emma Herbert-Davies explores documentary sources to gain insights into the methods and equipment used to train medieval horses. "Medieval Horse Training in England: Evidence from Thirteenth and Fourteenth Century Royal Accounts" is based on unpublished records that document the breeding and education of the kings' young horses. It

⁴ Clark, *The Medieval Horse and its Equipment*, 43-52; John Clark, "Curbing Horsepower: The Archaeology of Curb Bits in Medieval England – and Elsewhere," in *The Horse in Premodern European Culture*, ed. Anastasija Ropa and Timothy Dawson (Berlin: De Gruyter, 2019), 177-92.

therefore offers the first insights into practical evidence of medieval horse training. The forms and functions of the equipment listed in the documents are discussed and contextualized using the training advice given in hippiatric treatises, and Herbert-Davies, herself an equestrian with many decades of experience, considers its parallels with modern horse training practices.

Continuing with the topic of equestrian equipment, Anastasija Ropa, horse trainer and scholar of language and literature, explores whether certain items such as saddles, bridles, whips, and spurs can tell us whether they were used by men or women. In “Gendering Medieval Equestrian Equipment: Mission (Im)possible?” Ropa employs medieval European textual, artistic, and archaeological sources to consider whether some individual items could bear gender markers. Civilian medieval equestrianism was a gender-neutral occupation, but, although the types of horses and construction and decoration of equipment were determined by social status and wealth, in some cases items such as saddles, bits, and whips could be viewed as gender-specific.

The final chapter in the section on equestrian equipment is “A-Hunting We Will Go: The Transition from the Sideways Saddle to the Side-Saddle at the Turn of the Sixteenth Century and its Significance for Female Equitation” by Bettina Keil-Steentjes. This chapter looks at how women’s saddles evolved at the turn of the sixteenth century, allowing for a new riding technique. Keil-Steentjes argues that this development offered greater support for the rider, allowing women to more fully participate in hunting. Its wider implications are also explored, especially in terms of how this enabled women to better integrate with hunting’s social and political milieu, thereby impacting their influence in politics and their ability to exercise power.

The volume continues by exploring the wider themes of the history of horses in Europe. In Pamela Cross’s “Cavalry Horses and Chariot Racers: Osteobiographies of Two Horses from Roman Britain in Honor of John Clark” two horse skeletons are discussed using an osteobiography format originally developed for human burials. Cross combines detailed analysis with information from historical, geographical, anthropological, and other pertinent sources to place the remains within a personal and social context. The two horses’ biological remains are examined to reveal insights into their lives, possible activities, and the relationships between humans and horses in Roman Britain.

In the next chapter, we return to the topic of horse training in Camille Vo Van Qui's chapter "Fabricating an Ideal Beast: The Physical Transformation of Individual Equids in the Context of Medieval French Horse-Training as Presented in the Vernacular Translations of Jordanus Rufus's *De medicina equorum* (c. 1250)". This chapter is based on French translations of Rufus's work ranging from the thirteenth to the sixteenth centuries. Vo Van Qui shows that the training regime based on hippiatric considerations was designed to conform horses' bodies and temperaments to an idealised model. She analyses the physical transformations medieval horses had to go through during their training,⁵ as well as the potential consequences on their physical and mental integrity.

The following two chapters bridge the gap between the medieval and modern world by exploring the horse in literature and folklore, two areas that have been the focus of some of John Clark's non-horse-related studies.⁶ In "Northern and Pistol Revisited: The Emergence of Galloway Nag Satire in its Global Context," Miriam Bibby re-examines literary references to the Galloway nag/horse in Shakespeare's works and other texts. Bibby explores how the Galloway was used to allude to tensions around emerging British identity. Doing so brings to light the complex relationship between England and Scotland and the effects of the opening of global trade. Bibby also illustrates the changing perceptions of particular horse types over time and considers how this was manifested in texts, as well as the reasons behind such changes.

Simon Young's chapter examines the colt-pixy, a supernatural being from south-central England, tracing its evolution from Elizabethan times to the present day. Drawing on sources ranging from early modern literature to contemporary folklore accounts, the author explores the

⁵ See also Jennifer Jobst, "Horse Training in the Thirteenth Century: Insights from Jordanus Rufus," in *The Liminal Horse: Equitation and Boundaries*, ed. Rena Maguire and Anastasija Ropa (Budapest: Trivent: 2021), 13-50 and Ropa, "Crossing Borders in Equestrian Training: Applying Jordanus Rufus's Advice on Training Young Horses Today," in *The Liminal Horse*, 51-90. Jobst and Ropa have been advised by John Clark on the early versions of their respective articles.

⁶ For example, "The Green Children: A Cautionary Tale," *Fortean Studies*, 6 (1999): 270-7; "Trojans at Totnes and Giants on the Hoe: Geoffrey of Monmouth, Historical Fiction and Geographical Reality," *Rep Trans Devonshire Ass Advmt Sci* 148 (2016): 89-130; *The Green Children Of Woolpit: Chronicles, Fairies and Facts in Medieval England* (Exeter: University of Exeter Press, 2024).

characteristics of colt-pixy beliefs across Dorset, Hampshire, Somerset, and Wiltshire, and contextualizes the colt-pixy in wider British folklore. The study examines how this shape-shifting entity may have developed from a generic trickster spirit to a horse-like being, and traces the decline in the belief in colt-pixies in the nineteenth century.

The final chapter is by Jürg Gassmann and is a personal reflection on his family's odyssey in coming to conclusions about the possible size and conformation of the historical European war-horse, and the catalysing role John Clark played in that process. In "Discovering the Historical Medieval Warhorse" Gassmann, an enthusiast and owner of Spanish Mustangs, first discusses the breed's history in North America and considers whether Native Americans adopted horses before the expansion of European settlers. Next, the conformation of warhorses is discussed using a combination of practical experience and reviews of authors who have written on the subject. Gassmann's quest to find the answer to the physicality of medieval warhorses will resonate with many other historians who strive to find answers to difficult questions. As a fitting conclusion to this volume, Gassmann closes his chapter by reflecting on his personal encounters with John Clark, highlighting Clark's contribution to research on the historical horse and his ability to encourage and enthuse researchers at all stages of their academic journey.

It can be concluded without exaggeration that John is the life and soul of studies in equestrian history. Not only has his work incorporated a range of sources – archaeological, textual, and artistic – but he also has advised scholars working in various disciplines, from archaeology and zooarchaeology to literary studies and folklore. John's generosity in sharing his knowledge has been extraordinary, especially in a world torn by academic rivalry and often futile attempts to make "groundbreaking" discoveries in order to secure prestigious funding and positions. The contributors to this *Festschrift* all honour and wish to show their appreciation for John's openness to collaborative initiatives with everyone, from affiliated researchers to postgraduate students and independent scholars doing their research in their own time (and often funding it out of their own pocket). What is more, John is also open to the knowledge and experience that is derived from practice and is ready to acknowledge the contributions made by unaffiliated researchers, which can be disregarded (or not acknowledged formally) by scholars working within academic institutions.

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“JUST A BIT TOO LATE.” A HIGH-MEDIEVAL HORSE BIT FROM THE GLEICHBERG IN THURINGIA

Frederik-Sebastian Kirch,* Victoria Haack**

Abstract

Among the metal artefacts of the Celtic settlement of the Kleiner Gleichberg there is a distinctive amount of medieval material dating from the later usage of the mountain top. Among these finds there is a well-preserved horse bit with a hinge construction. As an example of a rare category of archaeological horse equipment of the High Middle Ages, this find sheds more light on the development of horse bits and their usage. Due to its state of preservation, it answers questions concerning the construction of other finds in different European museums.

Keywords

Horse Bit; Hinged Bit; Bridle; Riding-Equipment; Jordanus Ruffus; High-Medieval; Thuringia; Kandare; Hebelstangentrense

I. Introduction

The Großer Gleichberg and the Kleiner Gleichberg are two prominent mountaintops in southern Thuringia. The two mountains are positioned right next to each other. While little is known about the Großer Gleichberg from an archaeological point of view, quite the opposite is the case for the Kleiner Gleichberg. Due to its volcanic origin, the basalt deposits on the mountain attracted human attention early in the

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nineteenth century and quarrying uncovered vast amounts of prehistoric objects, as well as remains from Celtic fortifications. In the years to follow, the Kleiner Gleichberg proved to be the most significant Celtic hilltop settlement in Thuringia. Research on the so-called “Steinsburg,” a name already known in the ninth century due to the vast basalt fields covering the mountain, led to the construction of the Steinsburgmuseum in 1929. Here, the findings of the Kleiner Gleichberg are presented to the public and additionally, it is the seat of a department of the Office for Heritage-Conservation Thuringia (OHCT). The Oppidum occupied an area of roughly 68 hectares, and the mountaintop was surrounded by three lines of stone walls. The findings indicate typical crafts such as metalwork, wood, and textile work were practiced in the settled areas in between the fortifications. Although the settlement on Kleiner Gleichberg has been the focus of research since its early discovery and has been extensively documented by the scholar Alfred Götze, it is only recently that parts of its metal tools and weapons have been published by Reinhard Spehr.¹ This publication is based on his academic work of the later twentieth century and in addition to the Latène findings, includes metal artefacts of the Middle Ages. During a short examination of the oeuvre the authors of this paper stumbled upon a drawing that immediately attracted their interest. Among several medieval and early modern items was a high medieval horse bit, although its attributed dating (seventeenth-eighteenth century) was incorrect. Thanks to the assistance of the Steinsburgmuseum, a personal examination of the bit was arranged shortly after.² The author of this paper has been in close contact with John Clark, the dedicated honouree of this publication, for several years regarding the study of medieval bit development.³ John’s publications served as one of the starting points of the authors’ own research. Given the rarity of high medieval horse bits, the author wishes to dedicate this article to him by presenting this unique piece, along with

¹ Reinhard Spehr, *Waffen, Werkzeuge und Geräte der Latènezeit und des Mittelalters vom Kleinen Gleichberg*, Sonderveröffentlichungen des Thüringischen Landesamtes für Denkmalpflege und Archäologie 3 (Langenweißbach 2021).

² My special thanks belong to Dr. Mathias Seidel, who made the examination and further chemical analysis possible.

³ For a short summary and overview of the development of the medieval horse bit see an online lecture during the Equestrian History Virtual Events series (2021) of the author: https://m.youtube.com/watch?fbclid=IwAR1_P_UqRvD4RqWp7OpSeU6jCjxXIFH9pyL7GPKtbcbz5YsZ6m-Zbaz2s8&v=QSTNKOp2u5w&feature=youtu.be.

its functional analysis and context within the medieval landscape of Kleiner Gleichberg.

II. Context

Unfortunately, very little is known about the exact context of the bit. The catalogue in Spehr's work entry states only that it was found in midsummer 1937 by ranger Emil Gundelwein on the western slope of the Steinsburg in an area called "Pflanzgarten" nördlich der "Bereiterswiese."⁴ These parcels and the exact findspot are hard to reconstruct nowadays. Consequently, we must contend with the lack of information that an exact findspot might have provided. While the Gleichberg is mostly known for its prehistoric history, there is also a certain amount of medieval activity. In 1838 the remains of the foundations of a chapel dedicated to Saint Michael were discovered on the southern peak of the mountaintop. Excavations of the chapel were carried out between 1928 and 1940 by Alfred Götze. Although no publication is available, Reinhard Spehr was able to reconstruct Götze's excavation results by examining his notes and drawings. The chapel is a simple rectangular building of approximately 14 x 7 m with a small, annexed sacristy. In the central area Götze discovered a reliquary tomb. To the north are also traces of additional medieval structures in the form of stone reinforcements for lighter buildings. The findings ranged from the twelfth to the first quarter of the sixteenth century.⁵ Spehr estimated that, unlike the dry walls of the prehistoric period, the chapel was possibly constructed with stone walls bound with clay as early as the tenth century.⁶ In his more recent work, Spehr revised the dating of the chapel, suggesting it was constructed with stone walls in the thirteenth century. The chapel's use ended after it was destroyed by lightning in 1517.⁷ It is possible, though not yet verified, that a wooden building associated with the St. Michael patrozinium, which was very popular

⁴ That this area can be translated to "riders-meadow" is one of history's many jokes.

⁵ Reinhard Spehr, *Archäologische Topographie der Steinsburg bei Römhild* (Dresden 1980) 33-35, Fig. 30.

⁶ *Ibidem*, 34.

⁷ Reinhard Spehr, „Waffen, Werkzeuge und Geräte," 142-143.

during Carolingian and Ottonian times, predates the stone chapel. This structure was not identified during the early excavations.⁸

Several foundations on the eastern slope and other locations may also be medieval, given their distinct construction techniques compared to prehistoric houses and the presence of several medieval artifacts nearby.⁹ LiDAR-Scans of the area of both the Kleiner Gleichberg and the southern Großer Gleichberg show a remarkable number of traces of historical roadways and hollow ways around both mountains (Fig. 1). These ways can be connected to wood logging and foresting activities as well as the visitation and possible pilgrimages to the chapel on the mountaintop. During the Middle Ages, the only accessible routes through the still impressive prehistoric fortifications were the ancient gates. Consequently, the medieval hollow ways become more concentrated as you approach the fortification.¹⁰ The original findspot of the bit might, therefore be connected with these roadways up the western slope of the mountain. Whether the medieval materials like keys and kitchen knives are connected to the usage of the chapel or temporary use of the Steinsberg as a refuge¹¹ – for example, in 1945 when American troops arrived – remains uncertain. The medieval material consists of close-range and distance weapons (like arrowheads, blades, and spearheads), various craft tools, agricultural equipment, jewelry, and riding equipment including spurs, bits, over 100 unpublished horseshoes¹² and parts of clothing. The date range is very heterogenous, so no clear horizon of usage can be determined but it is clear that the mountain was used repeatedly during the Middle Ages. In academic circles today, the periods associated with the medieval use of the mountain are primarily from the later Middle Ages.

The closest centre of power is the Hartenburg (Fig. 1, Fig. 2). This castle on a hill is situated west of the saddle between the Kleiner Gleichberg und Großer Gleichberg. The distance to the western slope of the Kleiner Gleichberg and the point where the medieval roadways accumulate in the prehistoric gateway is almost exactly 2 km. The castle was first mentioned in 1179.

⁸ Reinhard Spehr, „Waffen, Werkzeuge und Geräte,” 144, 147.

⁹ Reinhard Spehr, „Archäologische Topographie,” 15.

¹⁰ Ibidem, 15.

¹¹ Reinhard Spehr, „Waffen Werkzeuge und Geräte,” 140.

¹² Reinhard Spehr, „Waffen Werkzeuge und Geräte,” 147.

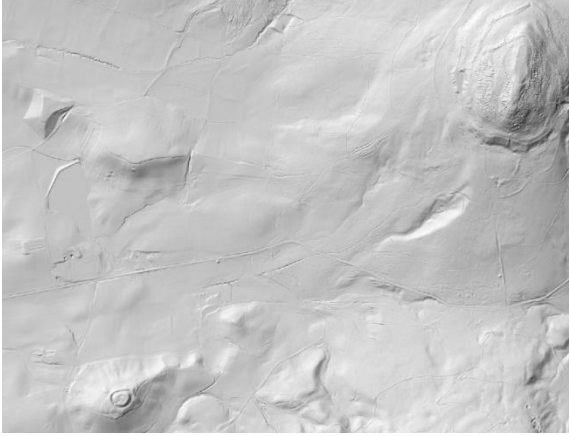


Fig. 1. LiDAR- Scan of the Area of the Kleiner Gleichberg (top right), northern slope of the Großer Gleichberg (down right) and the Hilltop of Hartenburg castle (down left). Visible are the prehistoric fortifications around the mountain as well as bundles of roadways toward the mountain.

Data provided by ThüringenViewer

<https://thuringenviewer.thueringen.de/thviewer/#> © GDI-Th.

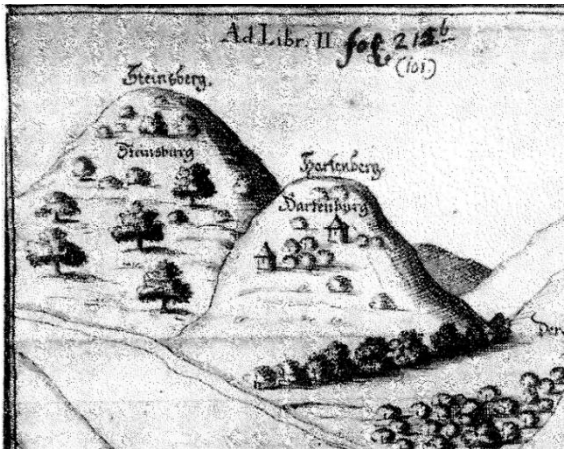


Fig. 2. The Hilltop of the already destroyed castle Hartenburg and the Kleiner Gleichberg marked as Steinsberg in M. Christian Juncker, "Ehre der gefürsteten Grafschaft Henneberg," 1700-1705 B.2 215b reproduced in Reinhart Spehr, "Archäologische Topografie," 7, Fig. 4.

It is estimated that the construction began during the tenth-eleventh centuries. The Hartenburg was under the control of the Counts of Henneberg and, since 1274 it was the seat of one of the three lines of that house. In the late fifteenth century, the castle was abandoned and the last remains were deconstructed in the seventeenth century. While no ruins remain today, topography and LiDAR-Scans still show the prominent remains of the 110 x 90 m round castle ditch and wall around the hilltop.

Two additional fortifications are being considered as the predecessors of the Hartenburg: a fortification of 40 x 30 m on the Hühnerberg, approximately 700 m northeast of the Hartenburg, and the so-called Altenburg, an approx. 230 m long three-segment installation with earth-timber-stone fortification half a kilometer southeast of the Hartenburg. While the first has yet to be clearly dated (but is a candidate for being older than the Hartenburg), the latter – because of several identical fortifications in the vicinity – is considered to be connected to the “Burgbauordnung” of Henry I. and the tenth century.¹³

III. The Bit

The excellently preserved bit consists of a two-part construction: the upper part which would have attached to the headstall of a bridle, and a lower U-shaped frame to which the reins would have been attached. Both frame and upper part are connected to each other via interlocking rings (Fig. 3, Fig. 4). The upper part is constructed by the bars with a half round cross section on each side, which are connected through the mouthpiece of the bit. The latter consists of a long round rod with a mushroom-like enlarged end knob, that is bent at a 90° angle toward the direction of the horse’s palate when the bit would be worn (Fig. 5).

The long rod is split up into a V-shape and ends in the loopholes into which the lower part of the bit is interlocked. From there, the mentioned sidebars bend about 90° back into the orientation of the mouthpiece. In terms of forging technology, it is therefore a single piece that has been cut open in the area of the V-shaped split, perforated on both sides and then moulded accordingly.

¹³ Gert Stoi, „Der Werdegang Römhilds zur Stadt,” fn. 64, available at <http://roemhilder-buchenblaetter.de/files/Schriften/RoemhildWerdegang.pdf> (accessed January 12, 2024).

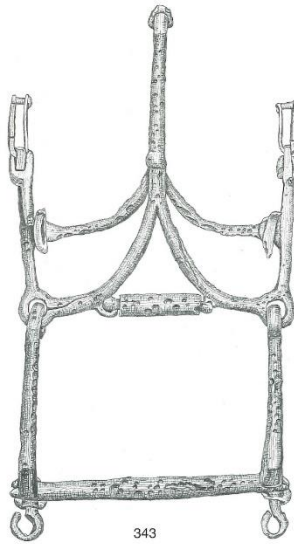


Fig. 3. Drawing of the Bit after Reinhard Spehr, *Waffen, Werkzeuge und Geräte*, 229, Tafel 35, Scale 1:2.

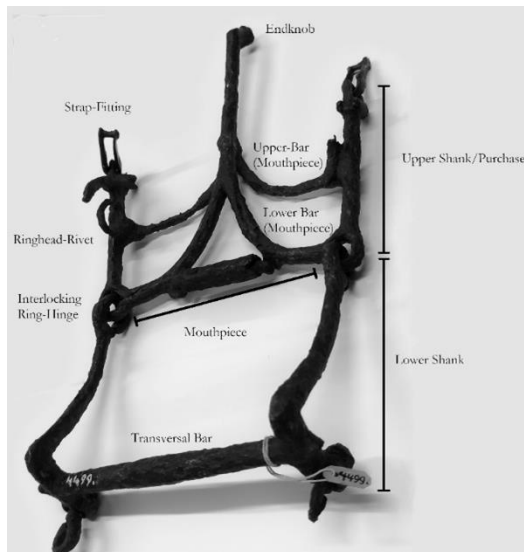


Fig. 4. The bit seen from its rear.



Fig. 5. Detail of the end of the long central bar of the mouthpiece.

Flat blocks were forged in the centre of the side bars, which protrude inwards. These are perforated. A second, somewhat flatter V-shaped bar was riveted to these projections and also attached to the upper side of the centre bar facing away from the horse's tongue using a rivet. Similar flat protrusions are found between the lower V-bar, level with the holes for the lower shank. A short rod was riveted between these, which is surrounded by a sheet metal sleeve that can be freely moved and rotated (Fig. 6). A hinged bit with a similar design can be found in a bit at the Musée du Cheval in Saumur,¹⁴ where the short-sheeted rod did not survive and only the protrusions between the V-bar of the mouthpiece remain. With the discovery of the Kleiner Gleichberg bit, the reconstruction of this feature in the Saumur bit now clear.

The rivet that holds the upper V-shaped bar to the side parts is shaped as a ring on the side pointing towards the rider (Fig. 7). Due to its state of preservation, exact measurements could be taken from the bit. The total length from the central roll between the shanks of the V of the mouthpiece and the end knob is 14.3 cm. The distance between the upper and the lower bar of the mouthpiece is 3.9 cm, and the width of the mouthpiece between the two ring-rivets is exactly 10 cm.¹⁵ The

¹⁴ Musée du cheval, Inv. Nr. 957.5.44.

¹⁵ Just as an indicator, a study of modern horses shows 9 cm bit-width as the absolute minimum among 554 horses of various breeds, types and sizes: Mirjami Antilla et al.,

dimensions become clearer once the bit is held in the hand (Fig. 12). Even though bit dimensions are not directly linked to absolute horse size,¹⁶ the measurements indicate a finer or broader built animal. In this case, the dimensions indicate a finely built horse, but it is hard to determine its withers height. This does not, however, indicate that the horse was unsuitable for demanding tasks, such as warfare.

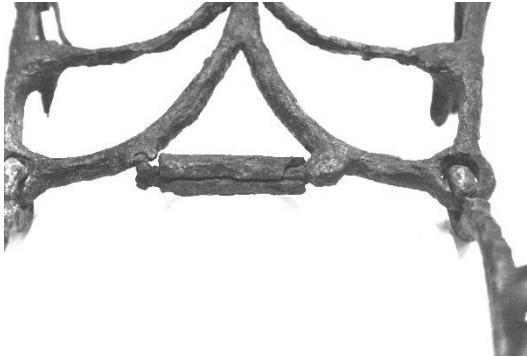


Fig. 6. Lower part of the mouthpiece.



Fig. 7. The ring-shaped rivet head connecting the upper bar of the mouthpiece to the protrusions of the upper shank.

"Oral Dimensions Related to Bit Size in Adult Horses and Ponies," *Frontiers in Veterinary Science* 9 (2022), 6, Tab. 3.

¹⁶ Medieval horse size, see Carly Ameen et al., "In search of the 'great horse': A zooarchaeological assessment of horses from England (AD 300–1650)," *International Journal of Osteoarchaeology* 31 (2021): 1247-1257.



Fig. 8. The gilded strap-fittings

Surprisingly, both metal strap-fittings attaching the bit to the headstall have survived (Fig. 8). They are ribbon-shaped clamps with a front shaped like a leaf with an end knob and were attached to the leather of the headpiece with rivets. Based on the strap fittings we can determine the thickness of the headstall's leather straps to be 5.3 mm. A similar mount with a slightly rhombic cross-section, triangular shape, and circular end knob was found at the Runder Berg at Urach and dates to the eleventh century.¹⁷ While the surface of the iron forged bit itself is heavily corroded, these strap fittings are made from a copper alloy and have preserved their initial form with precise contours. The surface of the strap fittings still shows a shimmering golden lustre that indicates a surface coating. XRF spectroscopy undertaken by the State Office for Heritage Conservation Thuringia confirmed this initial assumption and showed clear traces of fire-gilding based on traces of gold and mercury.¹⁸ Although the surface of the bit itself shows no remains of gilding and is much corroded, the gilded strap fittings suggest that it was a high-status item within the already prestigious category of riding equipment.

¹⁷ Norbert Goßler, „Reiter und Ritter - Formenkunde, Chronologie. Verwendung und gesellschaftliche Bedeutung des mittelalterlichen Reitzubehörs aus Deutschland,” in *Beiträge zur Ur- und Frühgeschichte Mecklenburg-Vorpommerns* 49 (Schwerin: Landesarchäologie Mecklenburg-Vorpommern, 2011), 222. Taf. 1, 1.A.10.

¹⁸ The analysis was done by Dr. Oliver Mecking, Archaeometry, Archaeological heritage conservation, OHCT.

The lower shank of the bit is essentially a U-shaped bar. It connects with the upper shanks and mouthpiece via a simple closed-eye hook. The sidepieces of the U are bent forward with a slight convex. At their lower part they turn 90° forward and end in a horizontal loop. In the middle of the forward bent part of the lower shank is a rounded transversal bar fitted in between. The bar shows signs of a hexagonal faceting while other parts appear round. This might have been intentional or due to corrosion and careless cleaning in the process of its discovery. Due to the state of corrosion, it is also not possible to determine if the horizontal bar was forged out of one single rod, like the upper part of the bit, or if it was riveted in between the shanks, although protruding knobs to the outside suggest the latter. The final part of the construction are two swivel-hooks with faceted heads that are attached to the horizontal loops of the lower shank.

III. Analysis

In archaeological publications concerning riding equipment, horse bits are usually separated by form. There are two broad groups: snaffles and their derivatives, where the reins are attached directly to the axis point of the mouthpiece with multiple variants of mouthpieces and cheekpieces, and curb-bits, where the reins are attached to shanks of various form below the axis of the mouthpiece.¹⁹ This separation however is already, in its definition, problematic, as the curb bit is defined by the existence or at least the intention of including a curb-chain or curb bar which is affixed to the upper part of the shanks. This goes under the horse's chin and applies pressure there via rotation of the bit's shanks. The term “shanked-bit” as a superordinate term for several forms of bits where the reins are attached to shanks below the axis of the mouthpiece (whether there is a curb and leverage action or not) might be more reasonable term for a first separation.²⁰ If broken down further, these

¹⁹ John Clark, *The Medieval Horse and Its Equipment c. 1150-c. 1450, Medieval finds from excavations from London* (Woodbridge: Boydell Press 2004), 43-44.

²⁰ For an overview see: Frederik-Sebastian Kirch, “Bits and pieces. The development of the medieval shanked bit,” online lecture. Horse history online seminars, on January 21, 2021. Available from https://m.youtube.com/watch?fbclid=IwAR1_P_UqRvbD4RqWp7OpSeU6jCjxXIFH9pyL7GPKtbbcz5YsZ6m-Zbaz2s8&v=QSTNKOp2u5w&feature=youtu.be.

shanked bits can be separated into two larger groups: bits with solid shanks, where the “upper tree”/purchase and the “lower tree” above and below the mouthpiece axis are made from one piece (regardless of whether the bits are used by one or two pair of reins), and bits where the construction consists of several parts and not one solid sidepiece. The latter type of bit was brought to wider archaeological attention by W. Gaitzsch in 1987²¹ under the clunky German term “Kandare mit gebrochenen Bäumen.”²² Although bits of this type have been published much earlier,²³ authors paid little attention to the technological differences between a solid shank or a construction in separate, movable parts. Several specimens of these “hinged bits”²⁴ have been published in recent years, broadening our knowledge of this group of horse bits.²⁵ The French examples are predominantly dated to the eleventh century, and John Clark rightfully connected this type of bit with the depictions of bits in the Bayeux Tapestry.²⁶ These hinged bits are a continental innovation that were brought to England via the Norman invasion. Apart from the Bayeux Tapestry, there are other references in the monuments of the British Isles that point to the dissemination of these bits. A manuscript in the British Library may be one such example. The Psalter, which dates to the beginning of the eleventh century, contains

²¹ Wolfgang Gaitzsch, „Eine zweiteilige Kandare des späten Mittelalters aus Königshoven,” *Archäologie im Rheinland* 1987 (1988): 131-132.

²² The term translates to “curb-bit with fractured trees.”

²³ For example, Z. Tóth, „Über die mittelalterlichen Hebelstangentrensen des Ungarischen Nationalmuseums,” *Zeitsch. f. Hist. Waffen- u. Kostümkunde* N. F. 2 (1926): 1-10.

²⁴ John Clark, “Curbing Horsepower: The Archaeology of Curb Bits in Medieval England – and Elsewhere,” in *The Horse in Premodern European Culture, Studies in Medieval and Early Modern Culture* 70, ed. Anastasia Ropa, Timothy Dawson (Berlin/Boston: De Gruyter, 2019), 178-180.

²⁵ Michel Colardelle, Eric Verdel, eds., *Les habitats du lac de Paladru (Isère) dans leur environnement: La formation d'un terroir au XIe siècle* (Paris : Maison des Sciences de l'Homme, 1993); Gilles Deborde, Nicolas Portet, „Les mors de bride du XIe siècle de La Chapelle-Saint-Luc (Aube),” *Cahiers LandArc* 13, (2016), available at http://www.landarc.fr/images/pdf/Cahier_landarc_13.pdf; Wolfgang Gaitzsch, “Ein westeuropäisches Pferdegeschirr des späten 13. Jahrhunderts aus Pergamon,” *Istanbuler Mitteilungen* 37 (1987): 219–56; Gaitzsch, „Eine zweiteilige Kandare”; Portet, Nicolas, and Marie-Agnès Raynaud, “Le mobilier en fer: les objets équestres,” in *Une résidence des comtes d'Angoulême autour de l'an Mil: Le castrum d'Andone (Villejoubert, Charente): Publication des fouilles d'André Debord, 1971–1995*, ed. Luc Bourgeois (Caen: CRAHM, 2009), 202–232.

²⁶ Clark, “Curbing horsepower,” 178.

illuminations almost exclusively of foot soldiers, with only one image of horses led by footmen and another of spear-throwing cavalymen on horses with ring snaffles.²⁷ Further images were added in the second quarter of the twelfth century, around two generations after the Norman invasion. These show fighters in a mounted melee, and their horses' bridles all have bits with shanks. The characteristic L-shaped design of the lower beams of these bits are depicted in great detail.²⁸ The Norman Conquest appears to have had a lasting and comprehensive influence on England's equestrian accessories, as evidenced by such details appearing in monastic book illuminations during this brief period.

The French examples are however not the earliest examples of this category, even though the number of archaeological specimens of the eleventh century indicate a widespread use in that region in that time. Earlier examples can be found on the Iberian Peninsula. A surviving specimen from the Granada-region (El Castillon) is dated to the ninth-tenth centuries.²⁹ One of the oldest iconographic evidence of a shanked bit with an upper and lower tree from Western Europe can be evinced in an equestrian depiction of the Beatus of Tábara, which was completed in 975.³⁰ The estimated dating of the Granada bits therefore does not appear to be too early. A bit closely related to the aforementioned preserved bit from "El Castillon" also comes from the Iberian Peninsula and was discovered in cave deposits attributed to the settlement of Liétor in the tenth-eleventh centuries.³¹ The bit is extremely well preserved and consists of a V-shaped mouthpiece with a rounded cross-section and a button-like end on the longitudinal bar. The upper shank is firmly connected to the mouthpiece with very long side bars (as is the "El Castillon," bit), and it has a lower shank incorporating a 90° bent L-shape and a massive crossbar near the point of the bend. The lower shank is connected by large eyelets. Both the mouthpieces of the bits are fragmented at the end of the V-shaped mouthpiece. The initial form of the endpoint is therefore unclear but based on other hinged bits a

²⁷ British Library Harley 603, fol. 23r, fol. 69r.

²⁸ British Library Harley 603, fol. 29r-29v.

²⁹ Encarnacion Motos Guirao, *El poblado medieval de "El Castillón" (Montefrío, Granada). Estudio de sus materiales* (Granada: 1991), 157, Fig. 13.

³⁰ Madrid, Archivo Histórico Nacional, Cod. 1097B, fol. 134v.

³¹ Julio Navarro Palazón and Alfonso Robles Fernández, *Liétor, Formas de vida rurales en Sarq al-Andalus a través de una ocultación de los siglos X-XI* (Murcia, 1996), 96-97.

rounded knob-like feature does seem reasonable. Another famous specimen should be considered when separating bits, namely the Visigoth bit which is stored in the Metropolitan Museum³² and is dated to the seventh-ninth centuries. Even though it has a V-shaped elongated mouthpiece and lower shanks connected through a hinge system, it does not feature an upper purchase (yet). The lower shanks – interestingly ending in a beam protruding upwards like a full cheek snaffle common for Germanic biting – are attached to the mouthpiece without a purchase. This is in keeping with Roman-Byzantine traditions and it must therefore be seen as an ancestor of the above-mentioned group of bits, but not a part of it.

John Clark rightfully observed a chronological aspect of the form of hinged bits of lower shanks.³³ The form changes from the very strongly bent L-shaped frames of the lower tree to shanks with only a short forward bend curve, and then to straight lower trees. This can be clearly observed in the transition of the Iberian bits before the turn of the first millennium, through the French examples of the eleventh century, and finally to finds from all over Europe from the twelfth-thirteenth centuries. However, it remains to be clarified whether this is congruent with the actual chronological distribution path of these objects.³⁴ The form of the lower frame is closely connected to the function of these bits while riding. The transversal bar was initially meant to make contact with the horse's chin groove when pulling the reins. Bits from antiquity, such as Thracian-Celtic or Roman bits worked using this concept. Recent practical experiments on whether transversal bars can apply pressure on chin grooves have come to different conclusions, but it seems probable that this was the case.³⁵

³² Acc. Nr. 47.100.24.

³³ Clark, "Curbing Horsepower," 179.

³⁴ The authors are currently working on a comprehensive study on the development of the shanked bits from antiquity to the sixteenth century.

³⁵ C. Gianelli and P.M. Desclos tried Thracian bits with horses and came to the conclusion that the transversal bar does not make contact. Several factors are problematic with this conclusion. The bar was attached to the lowest possible place. Antique bits often have several options to place the transversal bar. A higher positioning would have changed the experiment drastically. Additionally, the horse's head must be taken into consideration. It is plausible that a horse's head in the vertical position was the desired aim and the bar not making contact when the horse has its head in this position does not contraindicate the assumption that it used to do so in other positions. Lastly, the bit was used with the lower frame bent in a convex curve, while antique sources as do sources

The battle scene in Fig. 9 clearly illustrates this principle. The strong bend of the lower frame is clearly visible as is the position of the transversal bar near the chin groove. Any further shortening on the rein would move the transversal bar upwards and press it against the horse's chin. The intentional use of the transversal bar to apply pressure on the horse's chin is further underlined by a metal strap with upwards-facing triangular teeth on the above-mentioned bit of El Castillon.

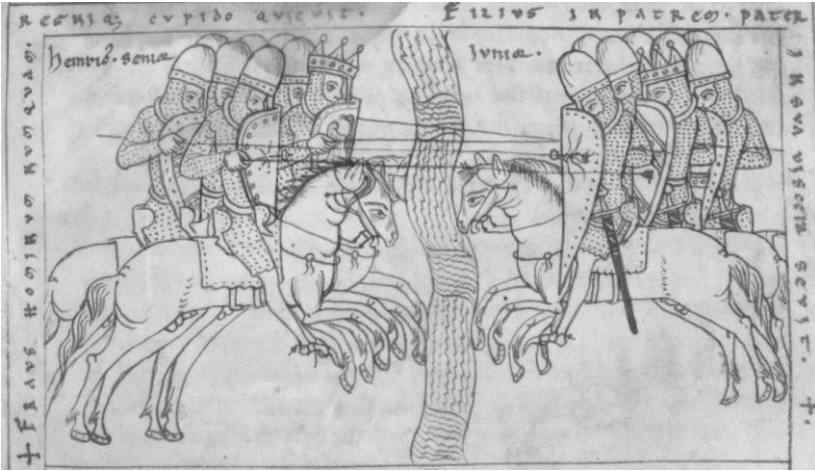


Fig. 9. Chroniques of Otto von Freising, c. 1157-1185, Thüringer Universitäts- und Landesbibliothek Jena, ThULB Ms. Bos. q.6 fol. 91v.

Similar teeth or spikes are also visible in a depiction of a transversal bar in a manuscript in the British Library.³⁶ One eleventh-century bit from the castle of Andone has a secondary alteration, where another, “tighter” transversal bar was attached to the lower frame.³⁷ This later

from late antiquity and Sassanian context show the lower frame bend concave. Therefore, the transversal bar is pushed above the line of the axis “mouthpiece-rein attachment point-hand.” Experiments with reconstructed bits of that period by the Fürstliche Hofreitschule Bückeburg, which the authors were able to witness and comment on, showed not only the possibility to perform high-school movements with reconstructed antique bits, but also that the transversal bars indeed did make contact with the horse's chin grooves.

³⁶ British Library, Add MS 11695, fol. 223r.

³⁷ Portet and Raynaud, “Le mobilier en fer” 204, Fig. 3.46.

addition is similar to the multiple adjustment points of the transversal bars on antique bits, allowing for adjustments for different horses or the evolving needs in the interaction between bit and horse. A bit from the Motte of Pineuilh, dated to the late eleventh century, and in many aspects similar to the example from the Kleiner Gleichberg, has a row of teeth, or small notches on the underside of the transversal bar.³⁸ A bit from the Grotte des Perrats³⁹ that is undated but can be put in the same timeframe as the previous bits has a transversal bar with a singular ridge on one side and two parallel thin ridges on the other side. This probably served to enhance the contact-pressure ratio. However, it should be noted that apart from the modification of the Andone bit, these teeth could also have served a different purpose, as they would have to be orientated at an angle to work optimally when the reins are taken up. Preventing someone from grabbing the bridle could also be their purpose.⁴⁰

Connected with the evolution of the shape of the lower frame is the design of the hinge connecting the upper shank and the lower shanks. The group of hinged bits can be further subdivided into two main partitions. A group in which the connection between mouthpiece and lower frame consists of simple interlocking rings – usually with strongly curved trees – like the discussed specimen, and another group with lugs on the lower one of the interlocking rings and significantly less strongly

³⁸ Nicolas Portet et al., “le mobilier métallique” in PINEUILH (33) „La Mothe” (RFO de fouille archéologique), vol 2B, ed. Frédéric Prodéo (Pessac: Inrap GSO, 2007), 757, Fig. 895.

³⁹ José Gomez de Soto, *Grotte des Perrats à Agris (Charente) 1981-1994* (Chauvigny: Association des publications chauvinoises, 1996), Fig. 73, 32.

⁴⁰ A vivid description of this technique comes from the famous poem about the life of William Marshal: “E li Mar[es]chals ala prendre Monseignor Symon par le frein,” see Paul, Meyer, *L'Histoire de Guillaume le Maréchal, comte de Striguil et de Pembroke, régent d'Angleterre de 1216 à 1219; poème français, pub. pour la Société de l'histoire de France*, vol. 1 (Paris 1891), 104, 2840. This technique is described repeatedly throughout many of the tournament encounters. There is however a big caveat as in line 16744 “freins” is used in the context of letting loose to use both hands for a sword swing, so in this case it could also mean reins. A taming episode – see lines 1220-1302 - in the oeuvre however describes also biting problems and reinforces the understanding of “frein” as the bit itself, but it seems to depend strongly on the context as the word might be used interchangeable.

curved lower frames. That these lugs might have a chronological significance⁴¹ was also theorized by John Clark.⁴²

According to the archaeological record these lugs first appear at least in the late Roman or early Byzantine periods. A bit from Iustiniana Prima in modern-day Serbia features a lug on its ring hinge. The sixth/early seventh century bit itself is (apart from its larger construction) a typical bit in the Roman tradition with the lower shanks connected directly to a mouthpiece that does not have a purchase.⁴³ If pressed against the mouthpiece, it would rotate against the horse's palate due to its elongated form, creating harsh reactions from the horse. The aforementioned Visigoth bit of the seventh-ninth centuries also features lugs on the lower ring of the hinged connection - an indicator of its Byzantine influence - while its decoration features a splendid mix of styles of Germanic and Oriental influences. Other Byzantine finds⁴⁴ of the ninth century indicate that these lugs were kept as a constructive feature, even though the bits feature at that point an upper shank just like their western counterparts. It seems, from an archaeological point of view, that the development of Oriental and European bits was divided around the ninth-tenth centuries and the technical detail of lugs to create palate pressure was actively abandoned in the west. Horse skulls from the Theodosian harbour in modern-day Istanbul show clear signs of palate inflammations and damage to the bone material in the palate-area.⁴⁵ These pathologies correlate with the aforementioned literally uncurbed rotation potential of these reinforced bits in Roman tradition. It seems possible that this potential for injuries led to the abandonment of these lugs in the Iberian and French bits of the ninth to the eleventh centuries, creating a new

⁴¹ Kirch, “Bits and Pieces,” 27:40 min.

⁴² Clark, “Curbing Horsepower,” 180-181.

⁴³ Bernard Bavant, “Mors de chevaux d'époque protobyzantine : l'exemple de Carićin Grad” in *Le cheval dans les sociétés antiques et médiévales (actes des journées internationales d'étude de Strasbourg, 6-7 novembre 2009)*, ed. Stavros Lazaris (Turnhout: Brepols, 2012), 141-152, fig. 14.

⁴⁴ Lyudmila Doncheva-Petkova, “Early medieval Bi-ritual Necropoleis at Balchik and Topola (Bulgaria) – Comparative Analysis,” in *Hadak útján. A népvándorlások fiatal kutatóinak XXIX. konferenciája. Budapest, 2019. november 15–16. (29th Conference of young scholars on the Migration Period. November 15–16, 2019, Budapest)*, ed. Martin Opitz Kiadó (Budapest, 2022).

⁴⁵ Vedat Onar et al., “Byzantine horse skeletons of Theodosius harbour: 1. Palaeopathology,” *Revue Méd. Vét* 163, 3. (2012): 139-146.

branch of bit-making tradition that only later returned to this technological feature.

Connected to the existence of these lugs in western/middle-European bits is a U-shaped feature in the form of a metal band or bar, which is usually attached to the upper horizontal bar of the mouthpiece. These lugs interact with the upper tree and make contact at a certain point of rotation, thus pushing the upper tree up into the rotation's direction. This results in the U-shaped bar attached to the mouthpiece being pulled up and pressed against the horse's chin groove, acting as a "true" curb bar. This is similar in action to the transversal bar. The big difference is that at the point of the lugs interlocking, the two parts of the hinged bit act as one piece with two lever arms rotating around the mouthpiece. The length of the lower shank, as well as the position and angle of the lugs, might change the amount of pressure that is applied by the curb bar when it engages. Simultaneously, the curb bar prevents the mouthpiece of the bit from rotating so much that it damages the horse's palate. This issue is not evident in the form of hinged bits without lugs.⁴⁶ This technological change can be recognised on the one hand by clearly depicted curb bars, and on the other hand indirectly by the aforementioned altered shape of the lower frames. Because the point of contact is at that point delivered by the curb bar, the lower frame can now incorporate completely new designs like completely straight or even rounded forms with no transversal bar.⁴⁷ The lugs are almost never depicted in pictorial sources due to the level of detail. However, if curb bars are depicted, the lugs must necessarily be assumed, as the former makes no sense without the latter. While an exact timeframe for this technological change is not easy to determine, sculptural and iconographic evidence suggests that this process was complete by the thirteenth century. An aquamanile of a knight on horseback from the Musée des Arts Décoratifs⁴⁸ dating to the second half of the twelfth century, shows in astonishing detail the construction of the bit consisting

⁴⁶ Although a small amount of rotation in the direction of the palate is observable, it is unlikely that the mouthpiece can be pushed thoroughly into the palate as the fixation through the headstall, the length of the cheekpieces act stabilizing and the interlocking rings move more freely without a locking point. Personal reference by Jennifer Jobst about recreated hinged bits as well as experiments of the authors with archaeological finds of hinged bits.

⁴⁷ For example, Musée du cheval, Saumur, Inv. Nr. 957.5.45.

⁴⁸ Musée des Arts Décoratifs, Paris, Inv. Nr. 27133.

of the upper tree with an eyelet for the bridle, the ring hinge for connecting the upper with the lower tree and the latter connected by a transversal bar. Even the mushroom heads of the swivel hooks of the reins connected to the crossbar are recognisable. In addition, a curb bar suspended in the cheekpieces of the upper tree can be seen. The portal figures of the Magi and their mounts on the portal of Saint Trophime Cathedral in Arles, dating to 1180-1190, also show curb bars reproduced in thin arches. We assume that this innovation came about in the second half of the twelfth century. Another indicator of this change was identified by Jennifer Jobst. The transversal bar of hinged bits without lugs would not make contact with the chin groove as soon as the horse's head was on the vertical. A slight lifting of the long rod of the mouthpiece might still be possible and continue to serve as signal transmission, however. As soon as lugs appear and pressure is applied through leverage, further force can be put on the chin groove by the curb bar even if the horse's head gets behind the vertical nose line. Jobst studied depictions of horse head positions in the artistic record from 1100 to 1400. She determined a significantly increased proportion of horses with head positions behind the vertical or even extreme flexion from the turn of the thirteenth century, while horses with heads behind the vertical were not detectable in the twelfth century.⁴⁹

This implies a sophisticated system for the earlier hinged bits in which the horse, if it carries itself in the desired position, is not disturbed too much by contact or pressure of the bit.⁵⁰ The very long central bars of the earlier hinged bits before the middle of the twelfth century might additionally encourage the vertical head position through the bit's balance point.⁵¹ It seems plausible that the introduction - or to be more precise reintroduction of stopping lugs in the hinge - was directed by the desire for more direct pressure and leverage while simultaneously being cautious of the potential for injuries with this construction, and by

⁴⁹ Jennifer Jobst, "Horse Head Position in Premodern Times: A Textual, iconographic, and Archaeological Analysis," in *Historical practices in Horsemanship and Equestrian Sports* ed. Anastasija Ropa and Timothy Dawson (Budapest: Trivent, 2022), 168-169, tab. 1-3.

⁵⁰ Examples for horses in the position of a vertical head, even in combat situations where it is clear, that further pulling cannot bring the transversal bar any closer to the horse's chin groove can be found for example in eleventh-century reliefs at the Cathedral of Angoulême, or the cathedral of Modena.

⁵¹ Jobst, "Horse Head position," 173.

introducing the curb bar to minimise the danger compared to the Byzantine counterparts.

Given this chronological framework it seems possible to use it as a *terminus ante quem* for the bit from the Kleiner Gleichberg. The lack of interlocking rings with no lugs indicate a dating before the second half of the twelfth century. If one would follow the hypothesis of the path of distribution of these bits, one would not assume that these bits, being innovative technology in the eleventh century in France – and seemingly spreading to its neighbouring regions like England from that point on – might appear in the early eleventh century in middle or eastern Germany. According to its construction, a reasonably wide timeframe for the dating of the bit of the second half of the eleventh to the first half of the twelfth century seems plausible.

There is, however, an extraordinarily detailed relief from the old Jubé or rood screen from the cathedral of Chartres, dated to around 1230/1240, that provides a technical detail, which might complicate the dating of hinged bits by the aforementioned grouping. The relief, often called “The Dream of the Magi,” shows on its right side several bridled horses. Even though time and the destruction of the rood screen in early modern times took its toll on the relief, it is evident that all three horses are bitted with hinged bits. While the two bits to the left are fragmented – even though they still show details like a curb-bar attached to the side cheeks of the bit – the one to the right is the best-preserved bit and its construction is very clear (Fig. 10).

The sidebars of the lower tree are slightly curved but show no sign of an L-shaped bending. Even though the relief is very detailed, there are no lugs visible. The cheekpiece of the upper tree is partly covered by a triangular sheet. Another bar can be seen below, pointing downwards and forwards from the upper beam. It appears to be moulded in the shape of a fork. This blocks the lower tree from a similar point as the stop lugs would do on other bits. This bit therefore also has an actual leverage effect. The Kleiner Gleichberg bit shows on its upper tree fragments of protruding bars pointing downward (Fig. 6/7). It might be possible that these initially were much longer and were used in a similar way as the Chartres relief indicates. The attachment point near the upper eyelet on the other hand would make it necessary to forge these extremely long to reach the lower frame. Together with the thickness of these fragments, it seems unlikely that this construction would be

plausible. Forged iron bars of that length and thickness might bend too easily, which would turn the whole construction useless if deformation occurred during battle or general use. Rod-shaped projections on the upper tree are also found on the Ludgershall bit⁵² (1280-1300) and Königshoven bit⁵³ (around 1300). The Wilnsdorf bit⁵⁴ (pre-1233) also has a similar triangular, decorative plate, which was also riveted to a triangular extension of the upper beam pointing backwards. In all these cases, the hinge of the bits features the lugs for creating leverage. The extensions of the upper beam in the case of Wilnsdorf and Ludgershall castle serve as attachment points for decorative bosses, or in the case of Königshoven as reinforced counterpoints for the lugs. It seems most likely that in the case of the Kleiner Gleichberg, these extensions also served for attaching decorative bosses or plates, which corresponds with the gilded strap-fittings, a feature that points to it being a highly adorned piece of equipment.

The lower frame of the three bits mentioned above has already lost its L-shaped form. Additionally, the mouthpieces also show a chronological development, as it is typical for the eleventh-century bits to feature a long middle rod with an upward-turned end knob, while the above-mentioned bits of the thirteenth-century do not show this feature.⁵⁵ Accordingly, it seems unlikely that the Gleichberg bit can be dated as late as the thirteenth century.

A similar fork coming down from the purchase to the lower shank is visible in the miniatures of the so-called "Crusader Bible."⁵⁶ Illuminated around the middle of the thirteenth century in the Paris region, around the same time as the Chartres rood screen and only a small distance away, the miniature shows an almost similar construction, lending further credibility to the naturalistic depiction of actual bits in the relief from Chartres (Fig. 11).

⁵² Clark, "Curbing Horsepower," 180, Fig. 11.2.

⁵³ Gaitzsch, "Eine zweiteilige Kandare," 131; Gossler, „Reiter und Ritter," 28, Taf. 6, 175 A.

⁵⁴ Gossler, "Reiter und Ritter," 290, Taf. 9, 196. 1.

⁵⁵ A comprehensive typology of the mouthpieces is currently being prepared by the author and will be presented in a future publication.

⁵⁶ Morgan Library, MS M 638, fol. 27r.

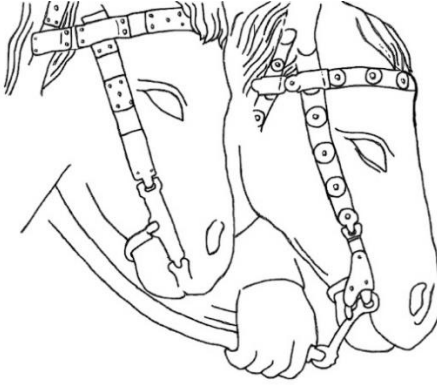


Fig. 10. Drawing by author after the Relief of the rood screen of Chartres Cathedral, c. 1230-1240.

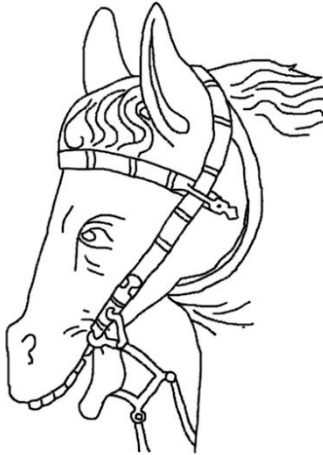


Fig. 11. Drawing by author after Morgan Library, MS M 638, fol. 27r.

Here the fork is attached – probably moving freely – in a ring hooked directly into the upper tree. Even though the miniatures of the Bible are detailed, the exact way how the construction worked remains open to interpretation. While the Chartres relief implies through its riveted triangular sheet a solid rod capturing the lower shank of the bit in its fork, the ring hooked into the purchase implies a moving part. That

would mean the fork or bracket would need to slide along the lower shank. Depending on the tightness of the attachment, a more solid construction might also be feasible. However, even with illuminations this detailed, the reliable number of functional clues is limited. It should be pointed out that these rods attached to the lower shanks do not reach a wide distribution. Creating leverage with lugs seems to be the more popular and dominant form of bit construction.⁵⁷ Furthermore, the bits depicted in the Crusader Bible and Chartres relief need to be classified separately from the so-called "fixed hinged bits". These feature a rod turned downward in an angle or curve from the purchase and are attached to the lower shanks via a bracket, rendering them motionless and creating a de facto solid shank.⁵⁸ Even though the construction seems related, it must be noted, that all known "fixed hinged bits" feature stop-lugs on the ring of the lower shank. The brackets usually fix the lower shank at a position where the stop lugs would not make contact. They derive in the fourteenth century from a separate family line than the above-mentioned examples from Chartres or the Crusader Bible. Their makers aimed for direct leverage action but viewed the construction with stop-lugs as the sole form of lorinery, even though they only kept them as a typological rudiment.

It is necessary to look at another feature of the Kleiner Gleichberg bit: the rings forming the rivets for the upper bar of the mouthpiece. This feature doesn't exist on any other published hinged bit. The interpretation of this feature is correspondingly difficult, as it does not appear in pictorial sources either. When worn, the rings of the bit would point in the direction of the rider. Considering them as attachment rings for a pair of reins seems only natural. However, riding with two sets of reins does not appear in art before the fourteenth century. The position on the protrusions is often used to attach the curb bar via hooks.⁵⁹ This is not possible in this case. One might speculate if there was initially some

⁵⁷ The authors are for now not aware of further examples of this construction in the thirteenth century.

⁵⁸ For a closer examination of such a bit, see Marina Viallon, "New Research on a Rare Enamelled Horse Bit from the Angevin Court at Naples," *Metropolitan Museum Journal* (2019): 125–35. Other Examples are found at the Museo Stibbert, Florence, the Victoria Albert Museum, London or the Musée Denon, Châlons-sur-Saône.

⁵⁹ The Königshoven bit for example clearly shows the axis that is formed by the protrusions. The hook of the curb-bar is hold in place between the cheekpiece and the attachment point of the upper bar of the mouthpiece.