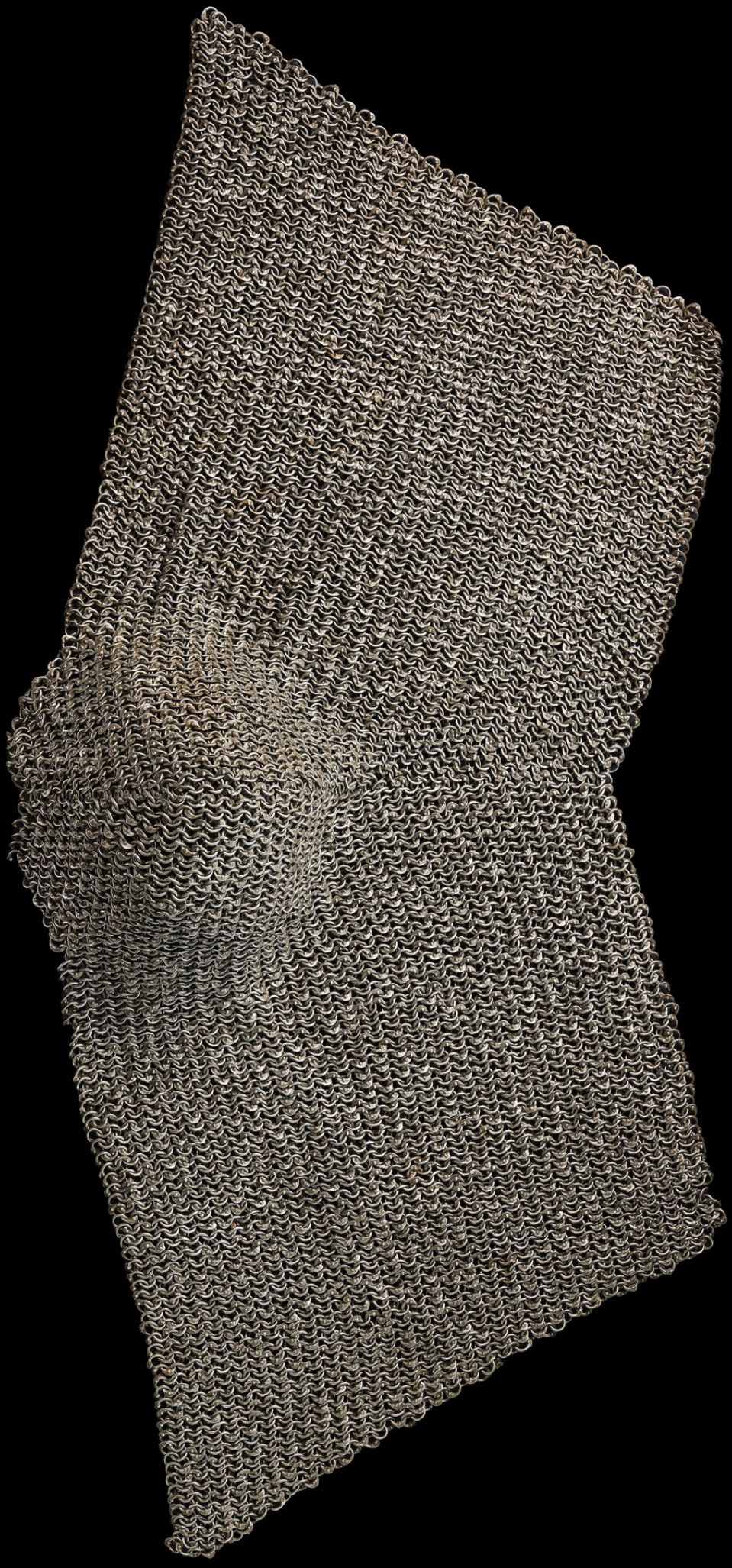


GROIN DEFENCE

Made of mail.
Germany, circa 1500.

Ring diameter: approx. 7 mm.
Maximum Width: 60 cm.
Maximum Length: 27 cm.

Number of rings:
- upper edge, frontal view, left side: 40,
- lower edge, frontal view, left side: 56,
- triangular ends: 10 on the outside, 5 on the inside,
- a total of 63 vertical rows.

Rings of round cross-section made from drawn wire pieces, individually riveted at their flattened, hammered ends, each enclosing four adjacent rings. In the center is a prominent codpiece in the contemporary fashion, terminating in two triangular projections at the bottom.

Provenance

Princely House of Liechtenstein, auctioned at American Art Association, New York, Novembre 19th and 20th 1926: *European Arms and Armor Mainly XV, XVI, & XVII Centuries, Including Artistic and Rare Specimens from Princely Provenience*, Lot 46, plate V, "**found with other pieces of mail hanging in the eaves of castle**".

In 1926, facing financial difficulties, the House of Liechtenstein was forced to sell off large portions of their art collections. The holdings of historical weapons were auctioned by the American Art Association, without explicitly mentioning Liechtenstein's name. To protect the consignor's reputation, the catalogue discreetly refers to "Princely Provenance." However, this could not conceal the true provenance.

Some of the items were acquired at auction by the Saint Louis Art Museum, where they remain on display today. Over the decades, following a period of financial recovery, the Princely House reacquired some of the objects that had passed into private hands and incorporated them into the family museum in Vienna.

Condition

The groin defense is in exceptionally good condition. Only a few rings are missing. Corrosion has also been minimal over the centuries. This is presumably due to the special circumstances that allowed the object to survive for so long. According to the auction catalog entry, the loincloth was found in an eave of the castle, which must have created particularly favorable climatic conditions for its preservation.

Comparative Pieces

Among the few surviving pieces of mail designed to protect the loins, the majority originated as a gift from Prince Albrecht von Radziwill to the Metropolitan Museum of Art in New York:

- Metropolitan Museum of Art, New York, Acc. No. 27.183.9, 27.183.11, 27.183.12, 27.183.13, 27.183.14, Ex col. Prinz Albrecht Radziwill. Brayette and buttock defense.

- Metropolitan Museum of Art, New York, Acc. No. 27.183.15, 27.183.16, 27.183.18, 27.183.19, 27.183.20, 27.183.21, 27.183.22, 27.183.24 Ex col. Prinz Albrecht Radziwill.
- Metropolitan Museum of Art, New York, Acc. No. 29.158.191, 29.158.204, Ex col. Bashford Dean.
- Metropolitan Museum of Art, New York, Acc. No. 14.25.1559.
- Metropolitan Museum of Art, New York, Acc. No. 14.25.1560.

- Art Institute Chicago, Reference Number 1982.3031.

- Cleveland Museum of Art, Reference Number 1916.1574.

Excursion: Mail from the Middle Ages to the Modern Era

The technique of producing wire and fashioning it into mail was adopted by the tribes of the Migration Period—having originated with the Celts and Romans—and subsequently spread throughout Europe. Until the mid-13th century, a knight's protective armor, with the exception of the helmet and shield, consisted entirely of mail. Throughout this long period, there were no significant changes in the technology used to manufacture it.

Mail could be worn like a garment; it was custom-tailored to the wearer's body measurements, ensuring a high degree of comfort and flexibility. A padded undergarment prevented the metal from chafing the skin and helped absorb the impact of light to medium blows. Mail offered excellent protection against the cutting edge of a sword and could even deflect slower-moving arrows. However, it could not cushion the crushing force of an axe blow, a lance strike, or a strike from

a mace—which is why a shield was carried as a supplementary piece of equipment.



Philistines capture the mail and helmet of King Saul.[1]

[1] Source: Maciejowski Bible (approx. 1250): MS. M. 638, FOL. 35R.

With the advent of the longbow in the 14th century—and, more significantly, due to the increased effectiveness of the crossbow—the decline of mail began, as it could be pierced by these weapons. Consequently, particularly exposed and vulnerable areas of the body, such as the chest, were reinforced with forged metal plates that offered reliable protection. Gradually, more parts of the body were covered in this manner, until, by the 15th century, a full suit of plate armor provided complete protection for the mounted combatant.[2]

Nevertheless, mail continued to be used until the end of the 17th century. It served as supplementary protection, worn beneath plate armor to prevent weapons from striking gaps between the plates—such as those at the armpits or the groin. Furthermore, mail remained an essential component of the defensive gear used by *Reisige* (soldier on horseback), as well as by Landsquenets and *Reisläufer* (Swiss mercenaries). Lacking full suits of plate armor, these men—depending on their financial means—would instead employ chainmail collars, sleeves, and breeches, combined with breastplates and other individual pieces of plate armor.

[2] Fliegel, S. (2007): Arms & Armor, p. 45.



Churburg No. 13, circa 1390.[3]

[3] Source: Trapp, O. (1929): The Armoury of the Castle of Churburg, fig. X.

Craftsmanship and Economics

Manufacturing a mail hauberk was extremely labor-intensive and expensive. In the Middle Ages this limited its use to the wealthy members of the knightly elite. In 805, an edict issued by Charlemagne linked the right to own land with the obligation to acquire a mail hauberk. Under the feudal system, the holding of land—granted as a fief by the king—was contingent upon the vassal providing military service in return. Records from the time of the Norman Conquest of England in 1066 indicate that a mail hauberk cost twelve solidi, a sum roughly equivalent to the value of a fine warhorse.[4]

From an early stage, the manufacturing process was characterized by a high degree of division of labor. The first step involved the production of wire, which could be achieved in two ways. One alternative comprised a forged iron rod that was pulled through a tapered hole in a draw plate. The wire-drawer would repeat this process, successively using holes with increasingly smaller cross-sections, until the desired gauge was attained.

Alternatively, a narrow strip could be cut using shears from a sheet of metal that had been hammered flat; this strip was then shaped by further hammering and grinding. All these steps could be performed on the metal while it was cold, provided it did not become too hard from repeated working. In such cases, the metal had to be heated until it became softer.

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[4] Fliegel, S. (2007): Arms & Armor, p. 49.

In the next step, the wire was wound in a spiral around an iron rod of the desired ring diameter and then cut apart to create numerous rings with open ends. To make the ends overlap, the rings had to be placed onto a rod and heated until they became soft once more. Afterward, they were driven through a tapering hole in an iron block..

Finally, the ends were hammered flat and provided with a hole for the rivets, either by drilling or by punching. The rivets themselves were also prefabricated. They were wedge-shaped, with a square cross-section at the rear and tapering to a point at the front. This shape was likewise fashioned from a wire that was hammered into a triangular groove and then cut into individual pieces.

All the steps described up to this point were carried out through a division of labor between apprentices and assistants. The hauberger himself then performed the riveting of the prepared rings to create the final product. Each ring interlocked with four neighboring ones and was subsequently secured by a rivet—applied using either a hammer or a punch—as shown in the illustration by Jost Amman (see below).

To increase productivity, closed rings were sometimes also used; these had to be arranged in alternating rows with open, individually riveted rings. They were punched out of sheet iron.[5]

[5] Pfaffenbichler, M. (1992): Medieval Craftsmen. Armourers, p. 56.



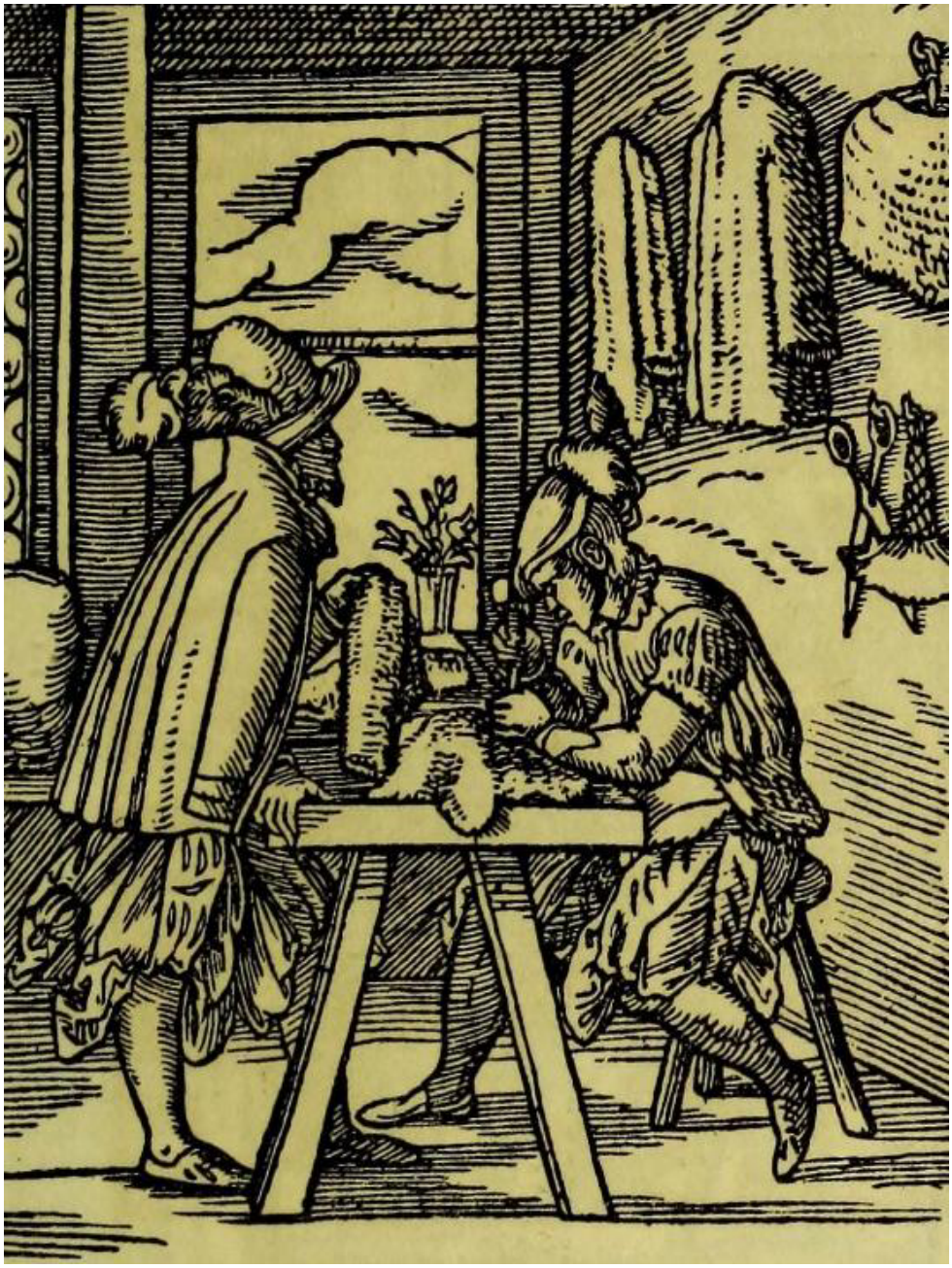
Drahtzieher (wire drawer).[6]

[6] Source: Hausbuch der Mendelschen Zwölfbrüderstiftung (1435), Amb. 317.2 Folio 40 verso (Mendel I).



Sarwürker (haubergerI.[7]

[7] Quelle: Hausbuch der Mendelschen Zwölfbrüderstiftung (1435), Amb. 317.2 Folio 10 recto (Mendel I).



Pantzermacher (hauberger).[8]

[8] Source: Amman, J. (1590): Eygentliche Beschreibung Aller Stände auff Erden.

Discussion

The groin defense presented here was intended either as additional protection to a full armor, or as part of the equipment of a more lightly armed trooper or mercenary. The number of original specimens that have come down to our time is small. Unfortunately, the vast majority of European ring armor suffered a similar fate when technological advances made them obsolete. They were cut into small pieces to be used as scourers for cleaning kettles.

Contemporary visual sources are therefore of great significance to research on protective armor used during the Middle Ages and the early modern period. An important source regarding the equipment of an early modern *Reisiger* (a mounted man-at-arms) is Albrecht Dürer's depiction of Saint Eustace on the Paumgartner Altarpiece. It can be assumed that this work by Dürer offers a highly realistic representation. The light protective armor—consisting of a breastplate with a lance rest, a besagew, pauldrons, gauntlets, and mail (protecting the arms, the loins, and the outer side of the hose)—identifies the figure as a Reisiger.

These were armed retainers or mounted escorts who, unlike a knight, had only a single horse at their disposal—which is why they were also referred to as "single-horsemen" (Einspännige).



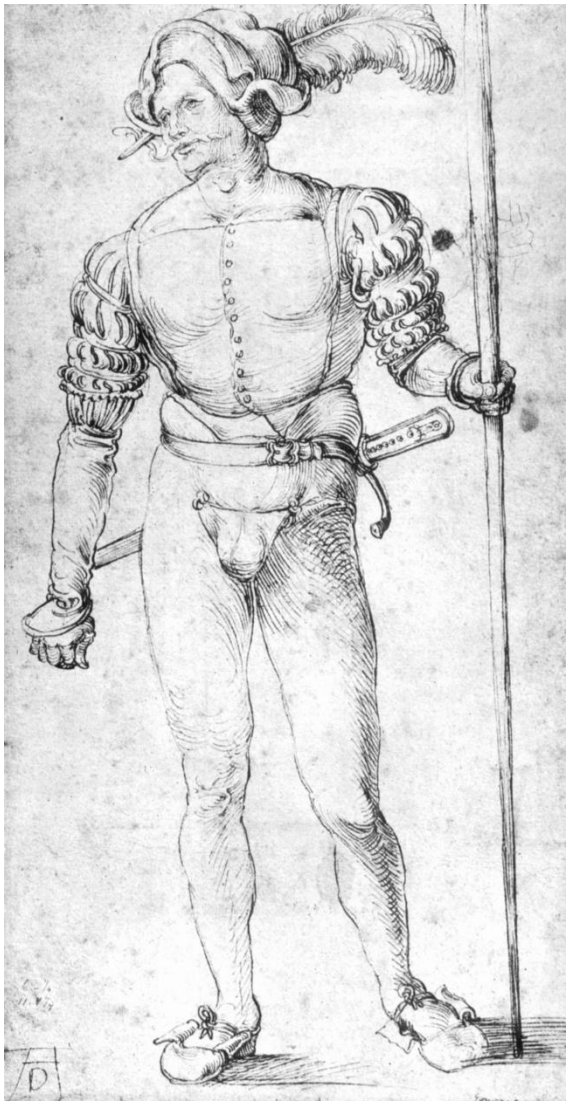
Heiliger Eustachius.[9]

[9] Albrecht Dürer, Paumgartner Altarpiece, after 1503, Alte Pinakothek, München.

Armor and Fashion – A Fascinating Interdependence, as Exemplified by the Codpiece

Since the Gothic period, defensive weaponry has been designed with more than just functional considerations in mind; contemporary fashion also influenced its appearance. In the case of the groin protection shown here, the prominent bulge in the genital area—the so-called codpiece—is immediately striking. This feature was adopted from civilian attire rather than being derived from any protective function.

From around 1483, the previously inconspicuous codpiece on men's hose began to be arched to accentuate the male genitals. The codpiece was often distinct in color from the rest of the hose, padded, and decorated with ribbons and bows. Sometimes, it even incorporated small pockets. The shape of the padding varied according to the wearer's personal taste. By around 1515, this protrusion had evolved further into the form of an erect, upward-curving phallus—a style that remained in fashion until the late 1520s.



Landsknecht (landsquenet).[10]

Due to the fragile nature of textiles, very few original specimens have survived. One such example is the Alpirsbach trousers, which were discovered in 1958 beneath the floorboards of the dormitory at Alpirsbach Abbey and are dated to around 1500.

[10] Hans Süß von Kulmbach, circa 1503.



Alpirsbach Trousers, circa 1500.[11]

The evolution of the codpiece into the shape of an erect penis can be traced through the surviving breeches of Fernando Francesco d'Avalos, kept at the Basilica of San Domenico Maggiore in Naples and dating from 1525.



Breeches of Fernando Francesco d'Avalos.[12]

[11] Source: https://www.kloster-alpirsbach.de/wissenswert-amuesant/dossiers/kleidung-aus-alpirsbach, accessed on 11/05/2026.
[12] Drawing of the original breeches, preserved in San Domenico Maggiore, Naples. Source: Lehnart, U. (2023): Kleidung und Waffen der Dürerzeit II, 1480 – 1530, p. 37.

The allusion to male potency—or sexuality—symbolically conveyed by the codpiece is obvious. Could there also be one to violence? This cannot be entirely dismissed, given that this fashion trend spread from the attire of landsquenets into the civilian sphere, even among the upper classes of society. Wolter characterizes this origin—rooted in the world of mercenaries—as a "symbol of the male posturing and display of potency" typical of the reckless, hard-drinking, and rapacious outsiders of that era, for whom war was a trade.[13]

Contrary to what Wolter suggested, however, the codpiece was not accepted without any social objection, nor did it fail to offend contemporary moral sensibilities. At the very least, the display of the genital area was—in some quarters, such as in the writings of Andreas Musculus—subjected to sharp criticism, particularly from the Church.[14] Could this trend, therefore, also be viewed as a deliberate provocation or an emancipation from the moral concepts held by the Church during the Renaissance? This question opens up avenues for further research.

Morality likely played at least some role when the spread of Spanish fashion—originating from the ultra-conservative Catholic court in Madrid—across Europe in the second half of the 16th century initiated the gradual decline of the codpiece, until it finally disappeared toward the end of the century.

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[13] Wolter, G. (1991): Die Verpackung des männlichen Geschlechts. Eine illustrierte Kulturgeschichte der Hose, quoted in TAZ issue of 9/23/1992, p. 3.
[14] Musculus, A. (1555): Vom Hosen-Teuffel.



Duke Heinrich der Fromme.[15]

[15] Workshop of Lucas Cranach the Elder, 1526.

As history progressed, their perceived moral offensiveness also preoccupied contemporaries during the prudish Victorian era. In some instances, codpieces depicted on epitaphs in churches were chipped away or altered, as such imagery was deemed inappropriate for houses of worship. A notable example of this can be found on the epitaph of Siegfried von Schwalbach in the Carmelite Church in Boppard. The codpiece was removed in 1840; traces of this intervention are still visible on a postcard dating from 1900. Shortly thereafter, the genital area was reworked, with a pattern of mail armor carved into the stone in its place.

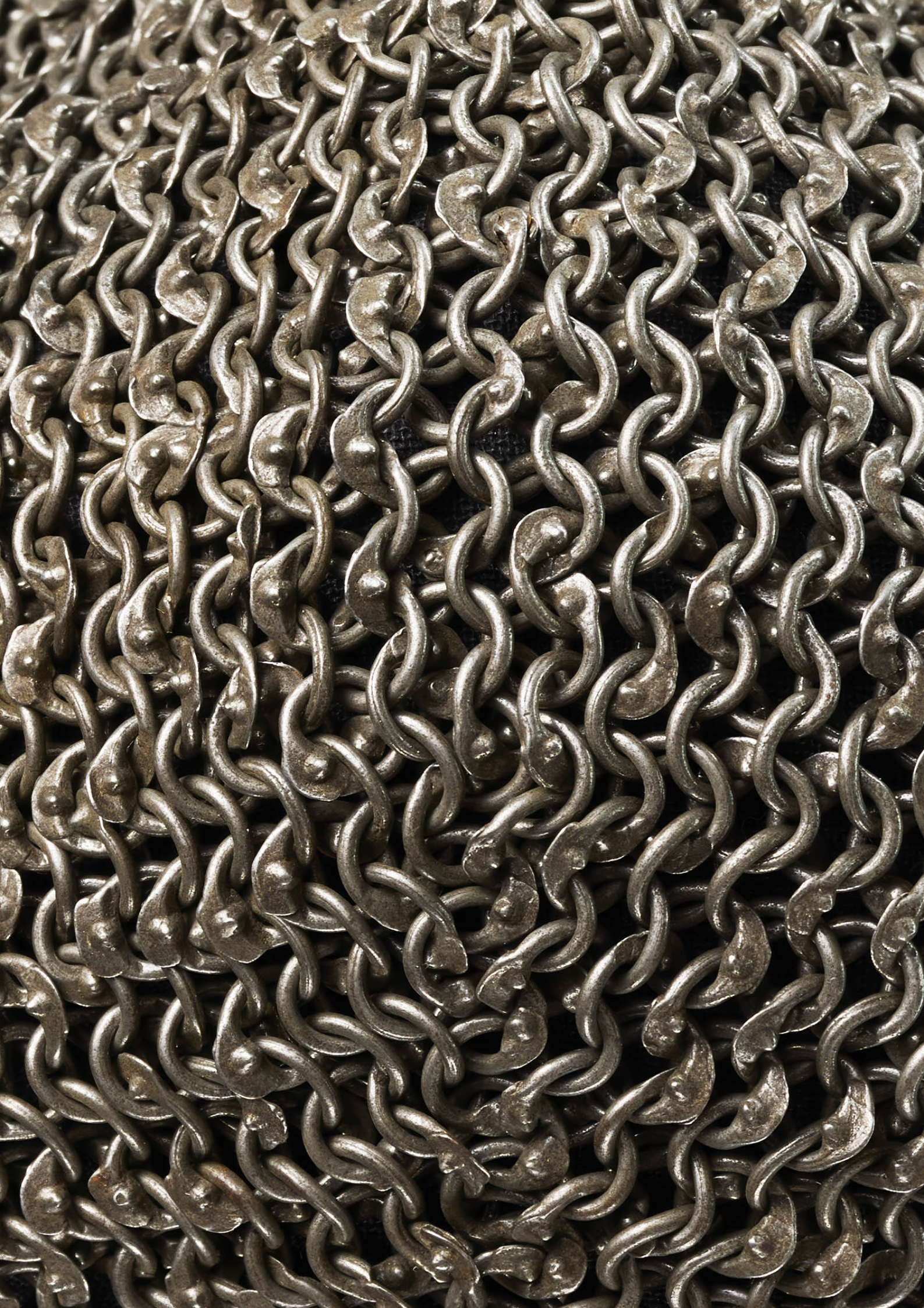


Epitaph des Siegfried von Schwalbach.[16]

[16] Died 1497. Left a postcard from 1900, on the right the current state. Source: https://de.wikipedia.org/wiki/Karmeliterkirche_(Boppard)#/media/Datei:Siegfried_Schwalbach_Boppard.png, accessed on 11/05/2026.

Appraisal

Very few surviving examples of the protective armor worn by mounted men-at-arms like Reisige and landsquenets from around 1500 have come down to us. As military technology evolved and mail became obsolete for combat, such pieces were typically cut up and repurposed as pot scrubbers. Consequently, only a small number of groin defenses are known to exist, most of which are now held in museum collections. It is therefore all the more remarkable that this particular piece—one of the few remaining in private hands—is offered in an excellent state of preservation. This is due to the exceptionally favorable storage conditions it enjoyed: it was kept under the eaves of a roof at a castle belonging to the House of Liechtenstein.



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