Armour design - The Almain Armourer's Album

**Object:** Armour design

**Place of origin:** Greenwich (made)

**Date:** 1557-1587 (made)

1587 (made)

**Artist/Maker:** Halder, Jacob (designer)

The Royal Armoury (made)

**Materials and Techniques:** Pen, ink and watercolour on paper

**Museum number:** D.605&A-1894

**Gallery location:** Prints & Drawings Study Room, level C, case 1F, shelf M, box 142C []

**Public access description**

This is a design for armour for George Clifford, 3rd Earl of Cumberland (1558-1605), courtier and politician, and comes from an album of designs known as the Almain Armourer’s Album, or Jacob Album. The Album is one of the Victoria and Albert Museum's great Elizabethan treasures. It was compiled between 1557 and 1587 by Master Armourer, Jacob Halder, and records, in vivid detail, notable commissions at the English Royal Armoury in Greenwich during those years.

This design is one of the more spectacular in the album. The main figure is dressed in heavy cavalry armour for use in battle. On the facing page are extra pieces for converting the armour into light cavalry or tournament use. The supplementary pieces include a grandguard to protect the left shoulder and neck during a joust, vamplates to attach to a lance to protect the hand, and horse armour including saddle steels, shaffron (face-guard) and stirrups. A locking gauntlet, to give an unbreakable grip on a sword during a tourney (mock battle) is also shown with a close helmet, a pauldron and a reinforcing breastplate, but these are shown only in outline. The design is painted reddish brown to denote that the armour should be heat-treated to turn it a deep blue. It is decorated with vertical bands of gilded etching and panes of Tudor roses and knots ornament rising up the armour. The designs in the album are stencilled, inked and painted with watercolour. Early colour depictions of this design show that it had faded by the time it came into the V&A's collection in the 1890s.

This design for armour is annotated, 'The Earle of Cumberland'. George Clifford, 3rd Earl of Cumberland, was a commander of the Navy who gained the Queen's notice for great gallantry during the Spanish Armada in 1588. He made his name and fortune as a privateer in the West Indies and, in 1592, was made a Knight of the Garter.

Clifford was an accomplished joust, becoming Queen Elizabeth's second champion on the retirement of Sir Henry Lee. She made him a Knight of the Garter in 1592. A cabinet miniature at the National Maritime Museum in London, painted by Nicholas Hilliard in around 1590, commemorates Clifford's appointment as the Queen's champion, showing him in a different tilting armour similarly blued and gilded.

The armours made from the design is in the collection of the Metropolitan Museum or Art in New York and is the most spectacular survivor of the Elizabethan Greenwich armours. It retains its original bluing, although this may have darkened over the years.

The production of armour was a highly sophisticated process. The designs in the Album record armours whose manufacture combined the skills of the artist, the tailor, the blacksmith, the goldsmith, the engineer and the locksmith. Their use demanded the skills of the courtier, the soldier, the diplomat, the sportsman, the actor and the daredevil.

**Descriptive line**

'The Earle of Cumberland'. Double-page design from the Almain Armourers' Album, Royal Armouries, Greenwich, compiled between 1557 and 1587, showing a design for an armour and supplementary pieces for George Clifford, 3rd Earl of Cumberland (1558-1605) (page nos. 78-79)

**Physical description**

Double-page design for armour for George Clifford, 3rd Earl of Cumberland (1558-1605) showing a heavy cavalry armour for use in battle, with extra pieces for converting the armour into light cavalry or tournament use. The main figure is on the left hand page and stands on a green surface signifying grass, and faces right. The supplementary pieces are on the right hand page. The supplementary pieces include a grandguard to protect the left shoulder and neck during a joust, vamplates to attach to a lance to protect the hand, and horse armour including saddle steels, shaffron (face-guard) and stirrups. A locking gauntlet, to give an unbreakable grip on a sword during a tourney (mock battle) is also shown with a close helmet, a pauldron and a reinforcing breastplate, but these are shown only in outline. The design is painted reddish brown to denote that the armour should be heat-treated to turn it a deep blue. It is decorated with vertical bands of gilded etching and panes of Tudor roses and knots ornament rising up the armour. The design is stencilled, inked and painted with watercolour and is annotated, 'The Earle of Cumberland'. This design has faded more than the others in the album: early colour depictions of this design show that this had occurred by the time it came into the V&A's collection in the 1890s.

**Dimensions**

Height: 43.2 cm Left hand page, Width: 29.2 cm Left hand page, Height: 43.2 cm Right hand page, Width: 29.3 cm Right hand page

**Museum number**
The most dominant commissioner of armour in the Album was Sir Henry Lee (1533-1611). He also used his armour to express his devotion to
were typical of his extravagant spending.

He entered the Privy Council in 1577 and ten years later was Lord Chancellor. His rise to power and lavish patronage of the arts, left
appointments, he was Master of the Horse and a member of the Privy Council. He exerted a powerful influence as both a politician and
overemphasised. He led the workshop at the peak of its creativity. Under his mastership, a combination of high quality construction and a
Halder was Master Workman at Greenwich from 1576 to 1607 and died in 1608. His contribution to the history of English armour cannot be

Sir Christopher Hatton, had at least three, possibly four, armours in the album, elements of which survive from all of them
(D.600&A-1894; D.602&A-1894; D.606&A-1894; possibly D608.&A-1894). His skilful fighting and dancing during tournaments brought him to the Queen's attention and he achieved the roles of Gentleman Pensioner in 1564 and Captain of the Guard in 1572. He entered the Privy Council in 1577 and ten years later was Lord Chancellor. His rise to power and lavish patronage of the arts, left him £42,000 in debt. His spectacular armour commissions, etched with lovers' knots and symbols of his romantic obsession with the Queen, were typical of his extravagant spending.

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heat-treated until it turned an iridescent blue. X-Ray analysis of the armour design for Lord Buckhurst (D.613-1894), revealed the reddish brown appearance in mid-century portraits of English courtiers, so this feature may be just as much a contribution to contemporary fashion.

Most of the armour designs in the album are shown with decorated borders. These were applied to the armour using a technique called acid-etching, making it possible to create highly decorated armour without compromising the structural integrity of the metal. Aesthetically, acid-etching is the metallic answer to embroidery. The technique creates a characteristic two-dimensional surface decoration to contrast with plainer areas of polished metal. An already-formed object is coated with an acid-resistant substance such as wax, into which a pattern is incised, exposing the metal underneath. The metal is then immersed in a solution of hydrochloric or nitric acid and water until its exposed areas have been eaten away. The resist is then removed to reveal the pattern. Gilding or blackening might be added to accentuate the design. The technique creates a shallow relief, simultaneously into works of art and death.

Where the skills were not be found locally Henry imported them. Initially he invited armourers from Brussels and Milan to produce armours both for his own use and for diplomatic gifts. The first 'Almains', the German armourers Henry came to favour, began work in 1515.

Henry built his Armoury on the south bank of the Thames near Greenwich Palace. The site is now a lawn in front of the National Maritime Museum. The location, near the river, meant there was a ready supply of water to power the mills. It also kept the workshop away from London where tension with the local guild of the employment of foreign craftsmen occasionally turned riotous.

The Greenwich armoury operated from around 1514 to around 1630. Henry VIII (r. 1509-48) established the Armoury as a key component in his drive to broadcast his image to the world as a modern, formidable king. He wanted his Armoury to rival the great workshops of Germany and Italy. Under Henry, the English court employed the finest armourers, artists, goldsmiths and engravers to turn armour and weapons into works of art and death.

Elements of the other to survive, etched and gilded with quatrefoils and strapwork, testify to the magnificence of the perhaps most spectacular design in the album (D.604&amp;amp;A-1894). By Royal appointment, Lee was Master of the Armoury from 1578-1611, the 16th-century equivalent of its Chief Executive. He would have worked closely with Jacob Halder, who was the Master workman.

**The Armoury**

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The first master of the Greenwich armoury, Martin van Royne, headed a staff of around 22, made up of hammermen who shaped the armour, millmen who burnished the metal, locksmiths who assembled and articulated the armour as well as labourers, apprentices and administrators. The armoury also had a mercury gilder, paid less than everyone else despite the dangers of his work. The first generation of armourers was from overseas but gradually English armourers appeared on the staff and became 'Almains'.

The Album comes from the second great period of the Armoury's history. The first 30 years had seen the Armoury producing armours for the King and a very few privileged noblemen. This was an outward looking period radiating Henry's aura across Europe. Under Elizabeth I (r. 1558-1603), however, the Armoury became more inward-looking. This was an era in which Elizabeth's courtiers were obliged to compete for her favour by visible displays of devotion, bravery and theatricality. The armours were lavishly decorated, in keeping with contemporary fashion, but this should not suggest they were merely for show. These were battle-ready armours. Some of the later designs in the album are for armours commissioned to face the threat of Spanish invasion in 1588.

After Jacob Halder's death in 1608 the Armouries were run by William Pickering, an Englishman with a distinguished career with the Armourers' Company. Some superb armours were produced, notably that of Henry, Prince of Wales in 1611 (Royal Collection, No. WIND.678) but both demand and output declined. In 1630 a royal commission recommended the workshop should close. In 1642 a London armourer called Edward Ansty, was asked to retrieve the remaining royal armour from Greenwich and two years later it was moved to the Tower of London, where, in the 1660s, it was displayed as the 'Line of Kings' depicting the kings of England from William the Conqueror (in a Greenwich armour of around 1590) to Charles II. The present day Royal Armoursies Museum has its origins in this display.

**The Armour**

The armours shown in the album were made of steel. The various components were made-to-measure around the body-shapes and biomechanics of their individual patrons. The articulated plates of the arms and legs were strapped together on the inside and the various elements of the armour were assembled and joined with hooks and clasps. It took practice to be comfortable in armour but, contrary to popular myth, its flexibility enabled its wearer to walk, run, sit and mount a horse unaided. The main discomfort was over-heating rather than the weight of the armour, which was distributed around the body. The best armour moved naturally with its wearer. The Spanish writer Luis Zapata claimed it was 'most unseemly for a jouster to move about in armour rattling like kettles'.

The Greenwich workshop imported good quality medium carbon steel for the first few decades it operated but it was not metallurgically advanced enough to harden it effectively. Under the mastership of Erasmus Kirkenar, between 1544 and 1567, the means to harden steel under warping it, were solved by slack quenching, leaving the steel to cool briefly after heating before immersion in water. It has been suggested that Kirkenar's early experimenting may have encouraged the production of animes, body armour constructed of horizontally articulated plates often associated with Greenwich, as the cooling of smaller pieces was easier to control. Designs for animes appear early in the Album (D.586&amp;amp;A-1894; D.587&amp;amp;A-1894; D.591&amp;amp;A-1894; D.593&amp;amp;A-1894). However, horizontally banded doublets also appear in mid-century portraits of English courtiers, so this feature may be just as much a contribution to contemporary fashion.

**The Decoration**

Most of the armour designs in the album are shown with decorated borders. These were applied to the armour using a technique called acid-etching. The technique creates a characteristic two-dimensional surface decoration to contrast with plainer areas of polished metal. An already-formed object is coated with an acid-resistant substance such as wax, into which a pattern is incised, exposing the metal underneath. The metal is then immersed in a solution of hydrochloric or nitric acid and water until its exposed areas have been eaten away. The resist is then removed to reveal the pattern. Gilding or blackening might be added to accentuate the design. The technique creates a shallow relief making it possible to create highly decorated armour without compromising the structural integrity of the metal. Aesthetically, acid-etching is the metallic answer to embroidery.

Many of the designs are shaded in a variety of colours. Armours intended to be of plain steel are shown as white with light blue highlights. Many of the armours in the album are shaded in a deep reddish brown. Where their corresponding armours survive, the armour was heat-treated until it turned an iridescent blue. X-Ray analysis of the armour design for Lord Buckhurst (D.613-1894), revealed the reddish brown appearance in mid-century portraits of English courtiers, so this feature may be just as much a contribution to contemporary fashion.
brown colouring to have been made from iron oxides with traces of zinc and lead. Areas of light blue were analysed on the stirrups in the design for Sir Henry Lee’s 1587 armour (D.610-1894) and revealed indigo as the source. The use of iron oxides to suggest large expanses of blued steel is likely to have been on grounds of cost or accessibility.

The Style

The noblemen whose names annotate the pages of the Almain Armourer’s Album were the fashion leaders of their day. As the leaders of society they were the chief beneficiaries of sumptuary legislation that regulated the cuts, shapes, materials and decoration of clothing according to status. With their position as noblemen however, came an obligation to present themselves in the most expensive and up-to-date manner. Elizabeth fostered an element of competition at Court. With no king to fear upstaging, her courtiers took up the challenge. Clients paid up to £500 for a decorated garniture (ensemble) of armour, for which they required a royal licence.

Armour was a form of clothing. The exaggerations and distortions it imposed on natural bodyshape flexed and contracted with contemporary clothing fashions. Sometimes armour copied clothing and vice versa. Mostly, however, both responded to the same aesthetic tastes in tandem.

The earliest designs in the album show the mid-16th-century fashion for vertically or horizontally banded breastplates picked out with lines of gilded etching resembling the embroidery on contemporary doublets. Broad, square-toed shoes and thigh-hugging leg-defences mirror contemporary hose and stockings.

The later armours of the 1570s and 1580, however, are the Album’s glory, produced at the time Elizabethan male fashions were at their most outrageous. The padded and layered clothing fashionable at court is mirrored in the exaggerated billowing of the tassets (thigh protectors) and breastplates, and the etching that decorates them. Bulbous trunk hose were popular in this period. To accommodate them, armoured tassets for the upper thighs took on a broad, inflated appearance, actually extending horizontally from the waist before turning downwards. Later in the century, the hose moved still further back up the thighs to promote long, slender legs in an echo of fashions a hundred years earlier.

The Album also vividly illustrates the 1570s fashion for the ‘peascod’ doublet, which distorted the body with its padded elongated form hanging over the waistline. Serving no obvious function, the ‘peascod’ breastplate was the military man’s contribution to this. The satirist Phillip Stubbes, in his &lt;&amp;Anatome of Abuses&amp;&lt;/i&gt; (1583), ridiculed the fashion: ‘What handsomeness can there be in these doublets which stand on their bellies like, or much bigger than, a man’s codpiece ... for my part, handsomeness in them I see none and much less profit. And to be plain, I never saw any wear them but I am supposed him to be a man inclined to gourmandice, glutonnie and such like.’

These glistening armours, decorated using antique and contemporary sources that also inspired ceramics, silver, sculpture, painting and architecture, turned these noblemen’s bodies into works of art. These designs show how their armour was at once the embodiment of their wealth, taste, loyalty, authority, athleticism and bravery.

The Purpose

The armours were not just for show. Men fought, jousted and skirmished in them, sometimes as organised sport and sometimes in the noisy, terrifying, twisting, chaotic, blood-curdling arena of the battlefield. Grand festivities might include a joust or tournament that was part of a wider theatrical narrative. Sir Henry Lee, became Queen’s Champion in 1571, declaring that he would present himself every year to defend her honour. He established the Accession Day tilts, probably in around 1581, which were costly festivals of jousting, poetry, music and feasting all aimed at glorifying the queen through performance. Lee is credited with the choreography and scripts for these events. They revived the entertainments of the first year of Elizabeth’s reign when she was flattered with entertainments at Greenwich such as the tourney involving Dudley and other knights heading two armies which skirmished. This mock battle was followed by jousting and foot combat and ended with fireworks and shooting.

The designs in the Album, therefore, record armours whose manufacture combined the skills of the artist, the tailor, the blacksmith, the goldsmith, the engineer and the locksmith. Their use demanded the skills of the courtier, the soldier, the diplomat, the sportsman, the actor and the daredevil.

History of Ownership

The Museum bought the Album from M. C. Stein of Paris in 1894 for 5000 francs.

According to the first major publication on the Almain Armourer’s Album, Viscount Dillon’s &lt;i&gt;An Almain Armourer’s Album: Selections from an Original Manuscript in Victoria and Albert Museum, South Kensington&lt;/i&gt;, (printed by W. Griggs, 1905), “The history of the MS. is unfortunately somewhat obscure to its early years. In January, 1725, Mr. Virtue exhibited it at a meeting of the Society of Antiquaries of London. Next, in 1792, Pennant, in his &lt;i&gt;London&lt;/i&gt;..."; reproduced “by the permission of its then owner, the Dowager Duchess of Portland” (D.610-1894) the drawing of the 1st Leicester suit [D.588&amp;A-1894]. Again, in 1799, Strutt, in his great work on costume, gave a drawing of the suit of the Earl of Cumberland [D.605&amp;A-1894], which he called the Earl of Essex. The library of the Duchess of Portland (a daughter of Harley, Earl of Oxford) was sold in 1786, so we may suppose that the MS. once formed part of the great Harleian Library. From 1799 until its appearance in 1894 in the Spitzer collection, we know nothing of its history. At the sale of that collection, however, it passed into the hands of Mons. Stein of Paris, where the writer saw it and at once recognized the two figures above mentioned. He was interested with its conveyance to England, and the authorities of the Victoria and Albert Museum purchased the interesting MS. A short description of its contents and the identification of various suits still existing in England were given by the writer in Vol. LI of the Journal of the Archaeological Institute in 1895.”

Two further clues to previous ownership are recorded in the Album. The listing of designs in (probably) an 18th-century hand (D.586A-B-1894) has a name in earlier writing faintly inscribed as ‘Mr Wray’. On the back of the design for the Earl of Rutland [D.586&amp;A-1894] is inscribed ‘J. West, 1754’. This may refer to James West (1703-1772) of Alscott Park near Stratford-on-Avon in Warwickshire, a Fellow of the Society of
Antiquaries, and a collector of books and manuscripts, who became President of the Royal Society, and Joint Secretary to the Exchequer, until 1762.

Numbering systems

It should be noted that there are three numbering systems for identifying the armour in the album.

1. Folio numbers at the bottom of some of the pages are the earliest numbering. These may date from the first compilation of the pages in the 16th century. Some are not visible where the pages have been cropped by later owners.
2. Page numbers at the tops of the pages record the order in which the album was bound on arrival at the Museum in 1894. As most of the designs occupy individual double-page spreads, the numbers on the designs jump by 4 (eg. 4-5; 8-9; 12-13). The page numbers between are the backs of these designs. In some cases the designs are drawn back-to-back so the page numbers are consecutive (eg. 84, 85, 86, 87).
3. Museum Numbers record each design, rather than each page. Where there is a blank page behind, the number was sometimes inscribed there when the album was new to the Museum. This can lead to confusion when there is a different design on the facing page. The numbering system runs form D.586-614-1894. D refers to 'Drawing'. 586-614 are the individual numbers of each design. 1894 refers to the year of acquisition.

URL

http://collections.vam.ac.uk/item/O78116/the-almain-armourers-album-armour-design-halder-jacob/