

European hauberk Construction

This article details the pattern I have been using for the manufacture of 12th and 13th Century European Haubersks. It can be one of the more complex patterns to follow but the results are certainly worth the effort.

The aim of this pattern was to produce a hauberk with the characteristics so often shown in medieval art: whether that be illumination, stone carving or tomb effigies. The basic principle is that the hauberk begins with a circular yoke over the shoulders rather than the more commonly used 'T' Shirt style. For a very clear representation of this see Fig 1.



Fig1.

Apart from purely aesthetic reasons, this was done so that the long sleeves, often with attached mufflers (or hand protection), could be joined on with the mail running in the same direction as it does on the body. When this is done the mail fits more snugly over the arms and allows for greater freedom of movement.

Those who are familiar with long sleeved haubersks of 'T' shirt construction

where the mail on the sleeve is running the wrong way will doubtless be familiar with the way they can gape or hinder movement.

Another great advantage to having the mail hang in the same direction on the arms as on the body is that it makes blades less likely to catch in the rings from downward cuts, because the rings are presented in a vertical rather than horizontal fashion.

This kind of European hauberk is most often shown with an integral coif constructed in one of two different styles, or variations thereof. Firstly and most commonly is that consisting of an open circle around the face See Fig 1. and another closed or filled circle at the back of the head. This circle around the face can be tightened or loosened via a cord. See Fig 2. This cord runs through the rings around the face and exits at the corners above the eyes. This enables the coif to be worn quite low covering the chin only or as far up as right under the eyes. When fully loosened the coif can then be removed very much like a hood and hung round over your back. See fig 3. This is a very comfortable and practical arrangement giving full freedom of movement for the head and neck. It also allows one to cool down somewhat when not engaged in combat without removing the hauberk altogether.



Fig 2.



Fig 3.

A variation on this first style of coif is the wearing of an additional dome-like coif over the attached coif. figs 4 a-c. This is most likely done with a simple close fitting dome helmet in between the two layers of mail. This is shown very clearly in fig 4. c The integral coif with the circle around the face is clearly visible underneath a separate coif that is running in a horizontal pattern and just covers the area where the dome helmet is. Figs 4. a & b show the bottom edge of this dome helmet below the second coif.



Fig 4.a

Fig 4.b

Fig 4.c

The second style of coif is one that more closely resembles the standard horizontal pattern of coif. This joins in to the hauberk quite nicely as all the mail is running in the same direction. To facilitate removal of the coif there was often a loose hanging panel or flap that could be laced up to the brow level via a cord. See fig 5.

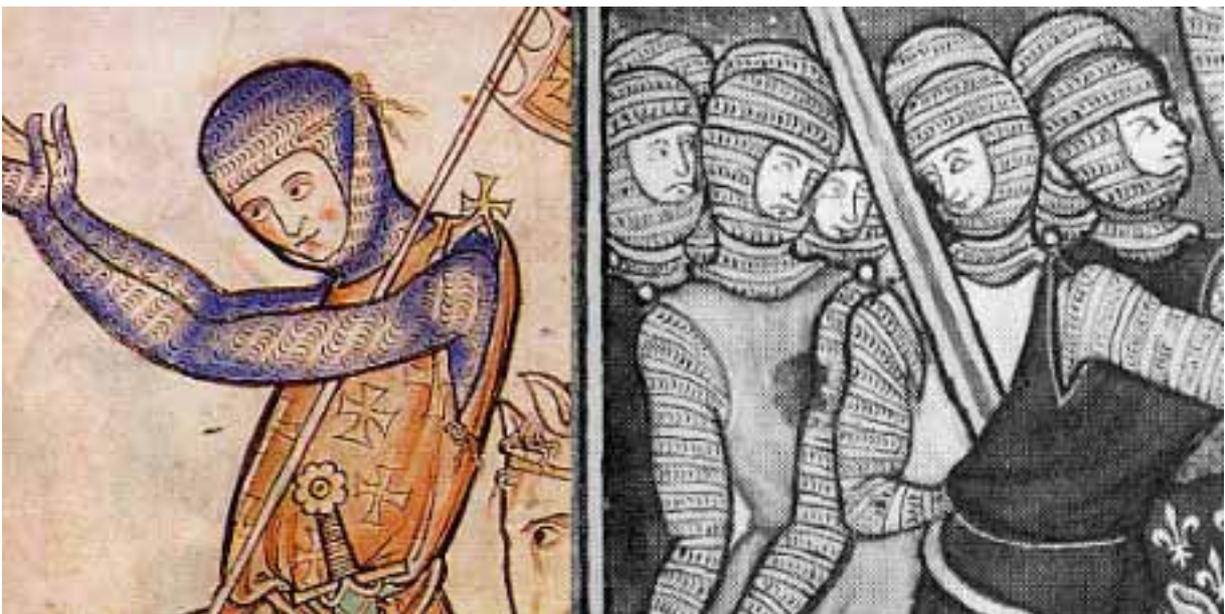


Fig 5.

Fig 6.

However as stated before this style is less commonly depicted in 12th &

13th C art than the one first mentioned and also most representations of it do not show any kind of flap or cord fastening. See fig 6. An attached coif that one cannot get out of would be most tiresome. So it is my opinion that in cases such as these the artist has either neglected to shown such details or simply been unaware of their necessity.

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When working with mail I work in rows and columns of rings connected to each other by links that I call connectors. See Fig 7. All of the rings face one way and are parallel to each other while all of the connectors are angled the other way to the rings. The piece of mail shown in fig 7. is a 3 by 10 piece, having 3 rows of rings and 10 columns. They are all naturally joined to each other by connectors.

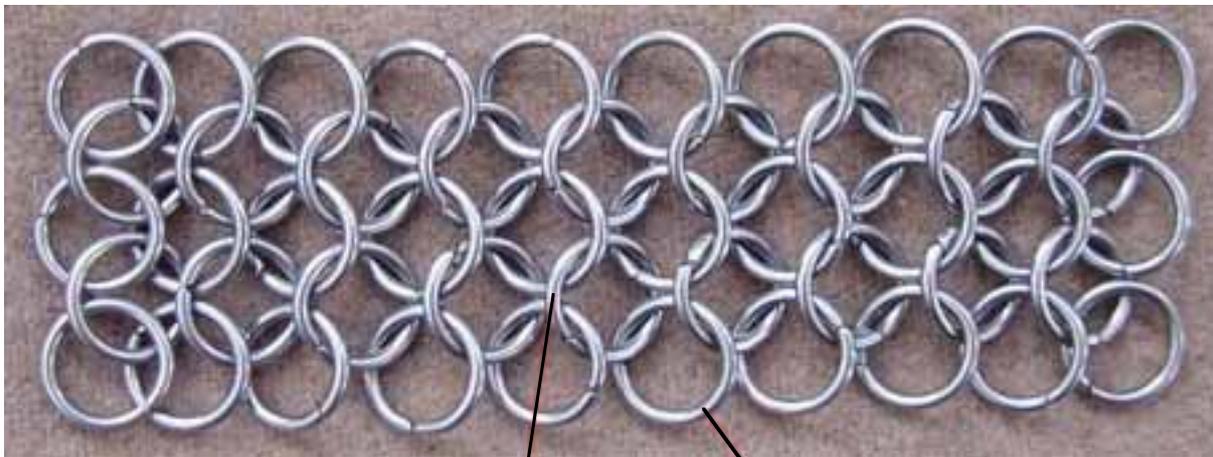


Fig 7.

Connector

Ring

To make the yoke style hauberk, start with a hollow circle of mail like the bottom edge of a coif that is 3 by 70 rings, seven pieces of what is shown in Fig 7 joined together and both ends connected to complete the circle. Expand this outwards at a rate of 7 rings per row. Evenly distribute the expansions around the rows to avoid a series of radial lines that will occur if all expansions are in the same positions. Fig 8.b shows how to divide the circular yoke section of the hauberk up into 7 segments and then distribute the expansions evenly. The diagram only shows the first 10 rows of the yoke. Continue adding 7 expansions per row until the very corner of the shoulders is reached.

At this point you can simply add rows without the expansions as the mail is now hanging vertically and the circle does not need to increase in diameter. If there is too much mail in the yoke this can lead to bunching in the armpits and severe restriction of movement. Continue adding rows without

expansions to the bottom of the yoke until, when worn over the gambeson, the mail hangs down to the point where it is level with the inside of the armpit. See Fig 8.a for a diagram of the basic components.

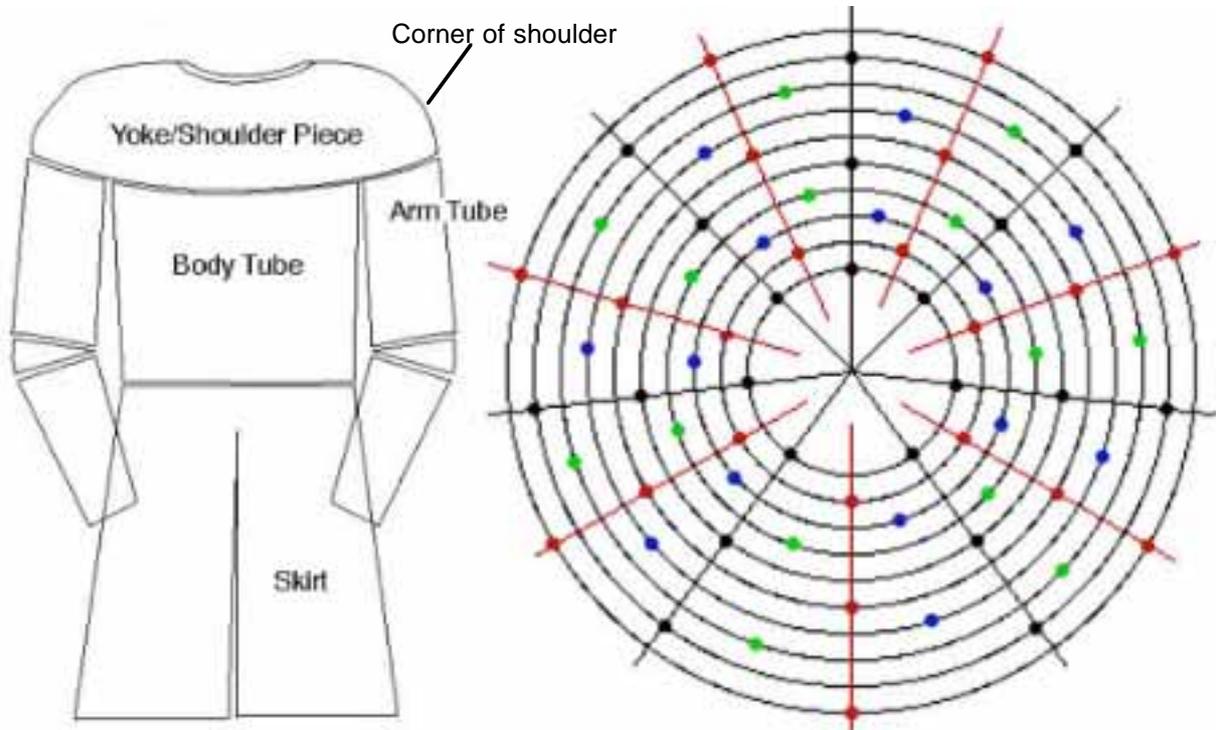


Fig 8. a

Fig 8. b

Next a basic tube for the body is attached to the yoke piece. Both at the centre of the chest and centre of the back. Each of these joins only needs to be about 20 rings across at the moment. For the sleeves, two matching tubes can be constructed. They should not extend past the inside of the elbow at this stage. These tubes are attached to the yoke at the outer most part of the arm for about 10 rings. The inner side of the sleeve is attached to the body tube of the hauberk for about 5 rings. To ensure maximum freedom of movement and minimise bunching under the arms the armpit of the hauberk should fit very snugly to the body.

This stage of assembly is one of the most critical of the entire hauberks construction. Regularly try on the hauberk checking for freedom of movement and any possible tight patches or snags. Adjust as necessary while trying to keep the sleeves as snug as possible to the body. To correct any problems at this stage several things might be required. The body or arm tubes may need to be enlarged or even reduced, likewise the yoke. During these fitting trials make sure that the body tube is fairly long about waist level, also the arm tubes extending to about the inside of the elbows.

Once a good fit has been achieved the 'seam' line between the yoke and body tubes can gradually be closed towards the arm pits. Like wise the 'seam' between the sleeve and the yoke can also be closed towards the arm pits. Make sure to try on the hauberk regularly during this process. Continue until only four small triangles are left. Front and back of each armpit. If these triangles become too small the hauberk will tighten up at the arm pit and restrict movement severely. These remaining triangles should be filled as best as possible. Triangular patterns in mail where all three sides of the triangle are running in different directions are always somewhat 'messy.' See Fig 9. for a Hauberk that still has the armpit triangles unfilled. It has also been photographed to make the join between the yoke, body tube and arm tubes easier to see with only every second connector in place.



Fig 9.

To permit free movement of the arms the elbow will need to be tailored. This can be achieved by adding an extra diamond shaped panel on the outside of the arm. This is exactly the same principle used to construct the knee of a good pair of chause and is performed in the same way. The sleeve should be made to fit the arm in a half bent position. This way when it is straightened some of the bunching will occur at the back of the elbow and when bent completely some at the inside. This provides much greater freedom of movement than having all of the bunching occur inside the elbow as will happen with a straight sleeve.

To construct this elbow section. Make a gently tapered tube that fits the forearm and extends to the wrist. Attach it at the inside of the elbow by 5 rings. Bend the arm to a half bent position and work out how many rings are required to be inserted at the back of the elbow. Add a strip 4 rings wide and then fill in the resulting triangles contracting towards the inside of the sleeve.

While the body of the hauberk can taper in towards the waist it should then start to expand at the hips and gently flair out as the skirt continues down. This will make the front and back splits sit much squarer. And allow greater freedom of movement for the legs.

Craig Sitch
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Patterns for construction of both styles of coif mentioned above and chause will be forthcoming.

Photographic Bibliography

- Barber, Richard. *The Reign of Chivalry*, Reed 1980.
- Bouchen, Francois. *20,000 years of fashion*. Harry Abrams NY.
- Bull, Stephen. *An Historical Guide to Arms and Armour*, 1991 Studio Editions London.
- Cockerell, Sydney (Introduction and Legends). *Old testament miniatures*, George Braziller
- Evans, Joan. *The Flowering of the Middle ages*, Thames and Hudson 1966 & 1985.
- Hofstatter, Hans H. *Art of the Late Middle ages*, Harry N. Abrams 1968.
- Humble, Richard. *Warefare in the Middle ages*, Mallard Press 1989.
- Huyghe, Rene. *Larousse encyclopedia of Byzantine and Medieval art*, Paul Hamlyn 1963.
- Kendall, Alan. *The Documentary History Series, Medieval Pilgrims*, Wayland Publishers London 1986.
- Koch, H.W. *Medieval Warefare*, Book Club associates London 1978.
- Mitchell, Sabrina. *Medieval Manuscript Painting*, Weidenfeld and Nicholson 1964.
- Norman, Vessy. *The Medieval Soldier*, Arthur Barker 1971.
- Savage, Anne. *The Anglo Saxon Chronicles*, Book Club Associates 1982-3.
- Shouchal, Francois. *Art of the Early Middle ages*, Harry Abrams 1968.
- Ward, J.O. *the Middle ages*, Rinewart and Winston.
- Williams, Jay. *Knights of the Crusades*, Cassell London 1962.
- Wise, Terence. *Armies of the Crusades*, Osprey 1978. (Pictoral only)
- Editors of the *Horizon Magazine*. *The Vikings*, Cassel London 1964.