

THE MAIL SHIRT FROM SINIGAGLIA

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THIS mail shirt, which is now in the Royal Scottish Museum in Edinburgh and was in the Meyrick and Noel Paton collections, dates from the fourteenth century. A little is known about its more recent history. Apparently it was bought by a Jewish dealer from an ancient family at Sinigaglia, near Bologna, 'in whose possession it had been beyond any of their records'. It has been published before¹ but because it is in such a good state of preservation, because mail shirts of the fourteenth century are rare, and because something is known about its history, it is important that it should be republished.

This is the first of what the writer hopes will be a series of articles on important mail shirts. Each article will consist of a report of a very full examination of each shirt, followed by any conclusions which can be drawn from the facts observed. As our knowledge of mail increases, the conclusions will probably go out of date, and, at this early stage of research, conclusions can only consist of some remarks about the construction of the shirt and some tentative suggestions about the armourer's mental and physical approach to its manufacture. It is hoped, however, as more shirts are published, on these new lines, that relationships between them will be observable. It is the aim of the writer to describe the shirts so fully in the reports that these can be used later as accurate source-material for a general study of mail.

GENERAL DESCRIPTION (pl. XXIV)

A mail shirt of the fourteenth century of heavy construction and of rump length with short sleeves. It is composed of large iron rings in alternate rows of riveted and whole rings. The borders are decorated with brass rings, the rump and the sleeve borders being vandyked in brass.

DESCRIPTION OF THE RINGS

Recorded thickness of wire (in inches to the nearest thousandth)

Whole rings

Iron:	0.108, 0.110, 0.105, 0.115, 0.103.
Recorded variation	- 0.012.
Average	- - 0.108.
Brass:	0.1085, 0.091, 0.097, 0.080, 0.076.
Recorded variation	- 0.021.
Average	- - 0.086.

¹ *A critical Inquiry into Ancient Armour*, by Sir Samuel Rush Meyrick, ii (1842), 16; *Engraved Illustrations of Ancient Arms and Armour*, by Joseph Skelton, i (1830), pl. xiv; Baron De Cosson and W. Burgess in *Arch. Journ.* (1881), 120, No. 1, and fig. 178; Laking, ii, 176-8, and fig. 516; *Foreign Armour in England*, by J. S. Gardner, pp. 19, 20, and fig. 1.

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Riveted rings

Iron:	0.056, 0.060, 0.058, 0.062, 0.067.
Recorded variation	- - - 0.011.
Average	- - - 0.061.
Brass:	0.063, 0.061, 0.062, 0.065, 0.064.
Recorded variation	- - - 0.504.
Average	- - - 0.063.

External diameter of rings (recorded parallel to the rivet joint)

Whole rings

Iron:	0.603, 0.607, 0.597, 0.598, 0.608.
Recorded variation	- - 0.011.
Average	- - - 0.603.
Brass:	0.649, 0.648, 0.660, 0.651, 0.645.
Recorded variation	- - 0.015.
Average	- - - 0.651.

Riveted rings

Iron:	0.538, 0.539, 0.539, 0.542, 0.543.
Recorded variation	- - 0.005.
Average	- - - 0.540.
Brass:	0.599, 0.606, 0.615, 0.578, 0.584.
Recorded variation	- - 0.163.
Average	- - - 0.596.

The whole rings

Both brass and iron whole rings have an irregular diamond-shaped wire section. The angle on the inner half of the diamond is more obtuse. This may be due to wear but is more likely that it was produced by the process of manufacture. Though the brass rings tend to be of rather thinner section and rather larger diameter than the iron ones, their appearance suggests that both types were produced by the same process. The rows of whole rings slope to the left.

The riveted rings

The riveted rings are made from drawn wire and the measurements suggest that the same draw-plate was used for both brass and iron wire. The wire section is similar to that of the punched rings but the diamond is not so pronounced. This suggests that though the wire was made in a draw-plate it was intended to copy the whole rings. In a two-sided swage draw-plate¹ a diamond could be produced by a file or, even more probably, by a chisel cut on each side of the swage. This would be a simple and natural way of producing the wire for the riveted rings in the shirt.

The rivets are of the wedge type with flat oblong backs flush with the ring surfaces facing inwards. All the rivets, in both brass and iron rings, are of iron. The direction of overlap at the rivet joints is anti-clockwise.

¹*Antiq. Journ.* xxxiii (1953), 49, fig. 1.

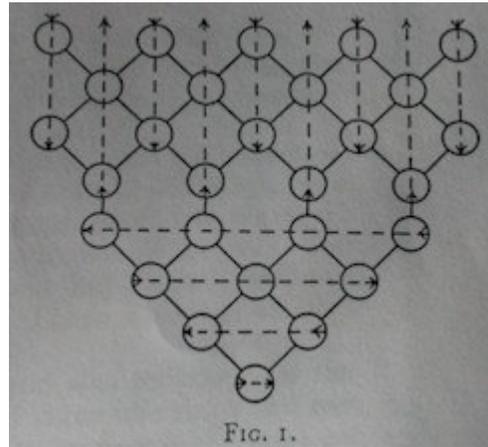
THE MAIL SHIRT FROM SINIGAGLIA

THE CONSTRUCTION OF THE SHIRT

The brass decorations

The neck opening is somewhat rectangular though the top five rows at the back and the front continue over the shoulders where they run at right angles to the rows in the sleeve. The first of these rows is of brass whole rings and there are sixty-three of them.

Each sleeve has a vandyked border, the vandykes being of brass riveted rings. There are seven triangles of these brass rings on each sleeve. The top of each triangle is linked to iron whole rings at the end of the alternate rows which run down the sleeve (fig. 1.). Each triangle is composed of ten rings, the arrows on fig. 1 denote row slope. The circumference of each sleeve end is fifty-two rows and, as this does not quite fit with the top rings in the seven triangles, some triangles are packed closer together than is shown in the diagram. As one brass ring is linked to every other sleeve row, and as there are twenty-eight brass rings at the tops of the triangles to be fitted to the sleeve, only a sleeve whose circumference was fifty-six rows would accommodate all the triangles with an even spacing.



There are twenty-one triangles of riveted brass rings around the rump fringe. There are ten rings in each triangle and the tops of the triangles are linked to the first row in the shirt, which is of riveted brass rings. This brass row, which formed the bottom counting row in the analysis of shape, contains 144 rings of which some are linked to the eighty-four rings in the tops of the triangles. The remainder hang free of the triangles and serve to separate them. As the number of rings in the bottom counting row does not match the rings in the tops of the triangles, and, as the rings which are over will not be divided into twenty-one equal parts, the spacing of the triangles is not quite regular. In most cases, however, there are two rings between each triangle. The difficulty is overcome partly by adjusting the gaps between the triangles and partly by compressing the tops of some triangles so that they hang on four rings in the counting row rather than five.

The shape of the shirt

The bottom counting row, the last complete row in the shirt, composed of riveted brass rings, contains 144 rings. The top counting row, the first complete row under the arm junctions, contains 130 rings: these rings are whole rings. The rump fringe, therefore, is twelve rings larger in circumference than the chest.

There are four sets of idle rings increasing from top to bottom at the rate of one idle ring to every other row. The sets are on the back, front, and sides but not

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quite vertically or centrally placed, for they slope down in a clockwise direction when seen from above. The sets start on row 37 and run down to row 21 from the bottom, and, in each case, the idle rings are riveted rings. In this way the expansion for the hips is produced, thirty-six rings being added.

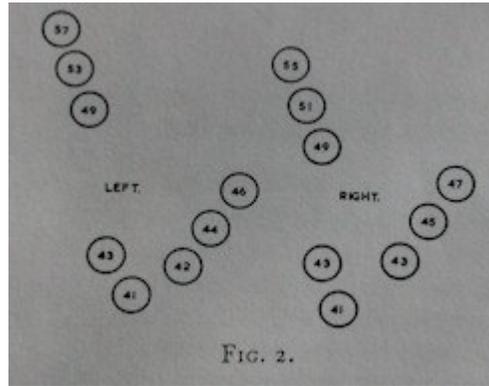


FIG. 2.

Decreasing idle rings are placed in the small of the back to form the reduction for the waist. There are six idle rings here and they are in three groups of two rings, on rows 47, 49, 53, 55, 59, 61. This too is not a vertical arrangement but slopes from top right to bottom left. These idle rings are also riveted rings.

Above each hip, and also reducing for the waist, are two sets of three idle rings and one set of two (fig. 2). The pattern is the same on both sides and is not reversed though one group is on the left and the other on the right. The numbers on fig. 2 denote the rows in which the idle rings occur. All these idle rings are riveted, except the set of three on the left, on rows 42, 44, and 46.

In the counted section, then, there are four sets of increases for the hips, nine idle rings in each, a total increase of thirty-six rings. There are eight decreasing idle rings for the waist on each side and six in the small of the back, a total of twenty-two rings decreased. This leaves a total increase of twelve rings, which is the already counted difference between the top and bottom counting rows.

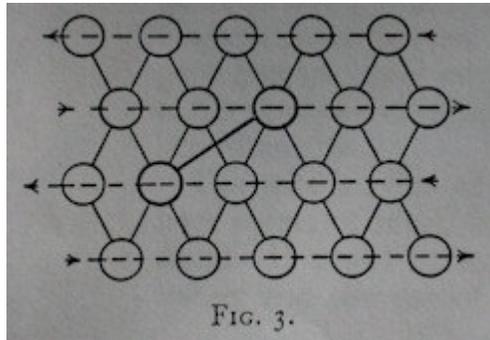


FIG. 3.

On the left hip one whole ring passes through three rings above it (fig. 3). This is not an idle ring nor is it associated with an idle ring and it makes no difference to the shape.

The top counting row is eighty rows from the bottom. There are ninety rows from the front of the neck opening to the bottom counting row. There are ninety-

eight rows from the back of the neck opening to the bottom counting row.

Shoulder-blade expansion

On each shoulder there is an increase of three idle rings to give more room for the hunching of the shoulders and the movement of the shoulder blades. Each set of three increases takes place in one row. On the left the idle rings are riveted and are on row 97 from the bottom. On the right they are whole rings and are on row 96.

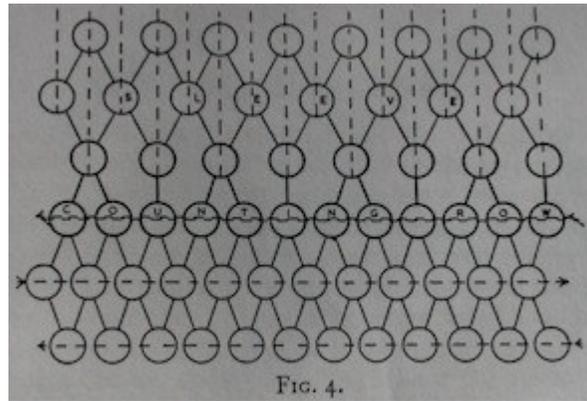
The sleeves

Each sleeve has an end-circumference of fifty-two rows. The top of the sleeve contains six more rows than this. These extra rows are removed under the arms

in pairs producing the hole-type construction, two idle rings to each pair of rows removed.¹

Armpits

The sleeves are joined to the body under the arms with a great sense of system. On each side twelve rings in the top counting row are met at right angles by rows



from the arms. Every other row in the arm is linked to the body with the end rings in these rows linking alternately to two and one rings in the top counting row (fig. 4).

The neck-band

A band of rings, five rows wide, crosses the shoulders between the front and back giving an edge to the neck opening. There are seventeen rings across the back of the neck and thirteen across the front. Between front and back, over the shoulders, the five rows join the rows in the sleeves at right angles. The riveted rows in the sleeves are the ones linked to the neck-band, because the last of the five rows is composed of whole rings. The same system is adopted as for the underneath of the arms, the riveted end-links take up alternately one and two rings. There are sixteen rings in the neck-band linked to the arms on each side.

CONCLUSIONS

The rings in this shirt are much larger, and very much thicker, than is usual in shirts of any period. The use of whole and riveted rings is a common feature of fourteenth-century mail and this fact, combined with the size of rings, suggests that the shirt might date from the first half of the fourteenth century, in spite of the vandyked borders which could be said to indicate that the shirt is somewhat later than this.

The wire section of the whole rings is unusual. They may have been punched from sheets of metal in spite of the strange diamond section which has been produced. It could be explained by the punching of rings from a strip rather than a sheet and the use of a punch with a very 'strong' edge, that is, a punch with a

¹ *Antiq. Journ.* xxxiii, pl. xxiii, and p. 199, fig. 6.

very obtuse cutting angle. In this case the angle on the outside of the smaller punch was not so obtuse as the angle on the inner side of the larger punch. If, as seems possible, punches were used, the cutting must have been done from both sides, probably while the metal was hot. Two mounted punches facing each other and joined either by hinged arms,¹ or with the upper and moving punch running in a guide, could have been used and a strip of metal heated in the forge before punching took place. On the other hand, these large rings could have been welded, as they are in some Eastern examples of mail at a later date. In this respect the shirt has a strong feel of the Orient about it, though here the resemblance ends. Most of the whole rings in fourteenth-century mail are thinner and flatter, like washers, and, if at all rounded, the rounded surface is on one side only, suggesting that the punching was done from one side. This type of ring is usually linked so that the rounded surface is on the inside. When these rings are linked with riveted rings of half-round wire section, the same metal surface area faces outwards, the inside causes the least wear to the garment underneath, and the weight is almost halved. It can be tentatively suggested, therefore, that the wire found in this shirt is typologically earlier than the half-round wire mentioned above.

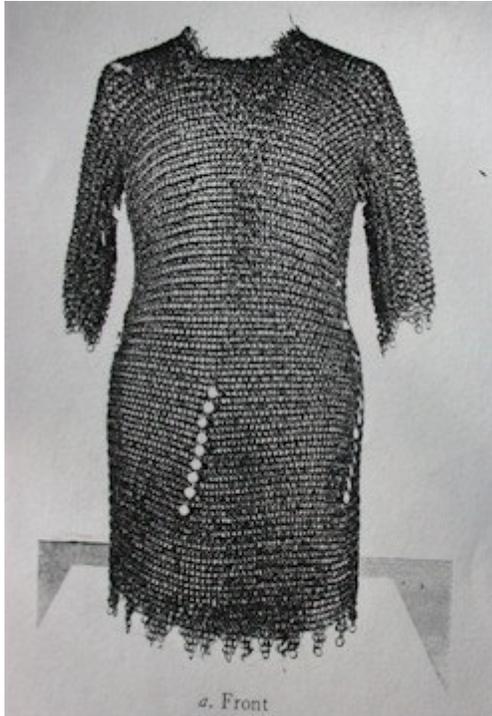
The constructional plan of the shirt shows less development than that found in later shirts. It must be remembered, however, that the larger the rings employed the fewer will have to be added or subtracted to produce the desired shape. It would be of interest, at this stage, to compare this shirt with the late fourteenth-century or, more probably, early fifteenth-century shirt, No. 920 in the Wallace Collection, signed Ernart Cowein, photographs of which have already been published.² The increases for the hips are in four sets of nine rings in both cases, but on the Sinigaglia shirt the sets are much higher up and do not reach to the rump fringe. In the Sinigaglia shirt a decrease of twenty-two rings was thought necessary for the waist. In the Ernart Cowein shirt, though the rings are much smaller, this decrease is twenty-six rings, but a totally different approach has been made to the reduction. Instead of increasing for the shoulder blades vertically on each shoulder and then removing the same number of rings on each side, under the shoulder blades in diagonal sets of idle rings, the set of six idle rings, in three pairs, attempts to follow the spine to the tense point in the small of the back, where later mail-makers often placed a clump of reductions. The Ernart Cowein shirt is a perfect example of this feature. It must be noted, however, that the total increase at the shoulders is still removed by the decreases at the back.

The rest of the reductions are at the sides, and here the mail-maker was seeing the reductions as a pattern in his mind's eye. So much is clear from the fact that this pattern has been repeated on both sides the same way round (fig. 2), in spite of the fact that one is on the left and the other on the right. This indicates that the maker saw the shirt as an outside observer would see it and did not identify himself with his product. This makes no difference to the fitting of the shirt, naturally, for the same reduction has been made on each side, but it throws an interesting light on the way the mail-maker saw the decreases.

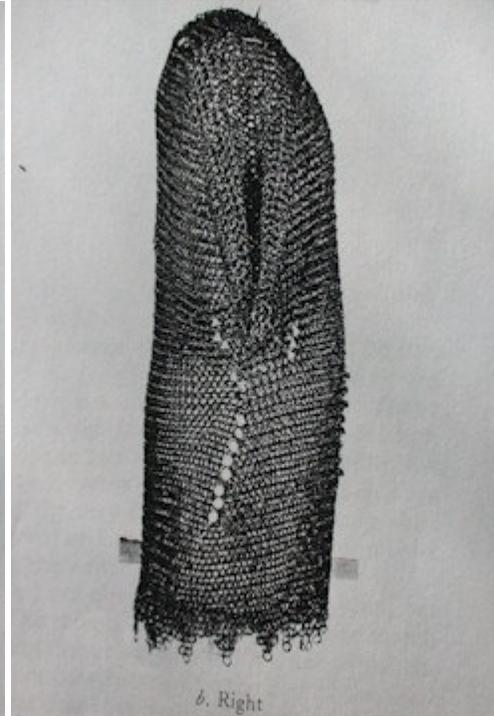
There is no reduction below the rib line, as there is on the Ernart Cowein shirt,

¹ *Antiq. Journ.* xxxiii, 51, fig. 4.

² *Ibid.*, pl. xxiv



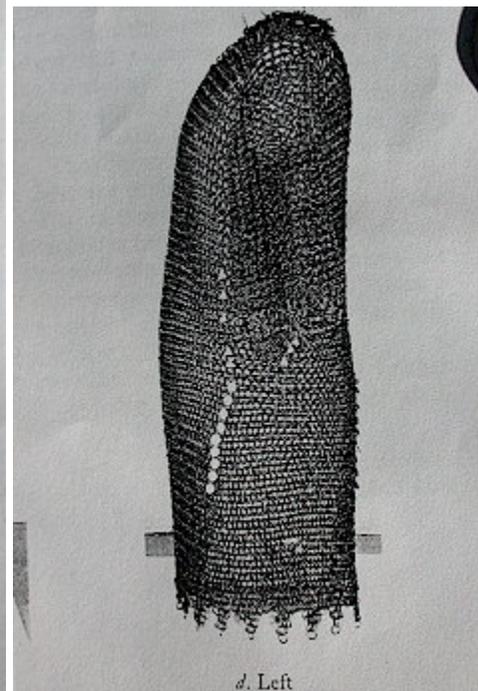
a. Front



b. Right



c. Back



d. Left

whose maker was conscious of two tense points, that in the small of the back and that in the centre of the front, between the downward-curving last ribs, just above the navel. It is possible, naturally, that the owner of the Sinigaglia shirt was stout, as stout as the very fine dummy on which the shirt is now mounted, but it is much more likely that the maker and his fellow craftsmen were working to a tradition. It is not likely that, with a quilted gambeson, or later an arming doublet, covering the body under the mail, attention to these tense points would have served a vital purpose. It is just that the maker of No. 920 was conscious of what was underneath, while the maker of the Sinigaglia shirt was not. This also helps to make the shirt typologically early, though, of course, it may be in quite another line of tradition. This is quite likely, seeing that the Earnart Cowein shirt is presumably German and the Sinigaglia shirt is probably Italian.

The increase at the shoulders is only three rings to each shoulder. The idle rings are arranged horizontally which also shows a lack of consciousness of the body form underneath. Most shoulder increases are not only increases to create greater area for the movement of the back and a hunching forward of the shoulders, but show an awareness of the shoulder blades as two ridges going down from the sides of the neck with the hollow of the spine between them. Examples of this are the Earnart Cowein shirt, mentioned above, the very fine fourteenth-century shirt from the Hearst Collection, now in the Tower of London Armouries, and a shirt signed Hans Muncher, in the possession of the writer, not yet published.

The vandyked brass borders are bold and are obviously meant to be seen, yet they are not carried out with precision. The tops of the vandykes do not match the circumference of the sleeves and rump fringe to which they are attached. This, combined with the fact that they are not constructed like the rest of the shirt with riveted and whole rings might suggest that they were added at a later date to the order of the wearer. If this is the case then the same workshop added the vandykes, for the appearance of the wire used, and its measured thickness, makes it almost certain that it was produced by the same draw-plate. It is far more likely that, for some reason, the brass whole rings, though desirable at the neck because of their smoother contour, were more difficult to make, and, for this reason were not generally employed for the vandykes. Though some vandykes in the rump fringe are terminated by one whole ring these are probably 'left overs' from the stock originally produced for the neck. The question of the matching of the vandykes to the fringes to which they are attached is best answered by the assumption that the mail-maker simply did not bother to match them exactly. The mistake on the left hip (fig. 3), and the pattern of decrease above each hip (fig. 2) show a lack of ruthless logic and exactness; the irregular spacing of the vandykes is in keeping with this. The general appearance, after all, is not affected.

The shirt is in an excellent state of preservation: it is to be hoped that further research on mail shirts will show us where it originated and decide its proper place in the development of the craft.

The writer is indebted to Mr. C. Blair, F.S.A., for supplying four of the footnote references and to Mr. Ian Finlay and his staff in the Royal Scottish Museum, Edinburgh, for their kind co-operation, which made the examination of the shirt such an easy and pleasant task.