

# THE FITZWILLIAM MUSEUM

## EDUCATION DEPARTMENT

### Fact Sheet

#### Armour Gallery 31



From ancient times to the present day, soldiers have needed to be protected as well as armed. For many centuries, this protection was provided by armour, made of leather or metal. Armour also had to allow the soldier to move freely and the combination of these two functions posed armourers a challenge.

Technological advances in metal working in the Middle Ages allowed the armourer's craft to scale new heights. Until then the most common form of protection was chain mail. As weapons such as swords and crossbows became more powerful, more protection was needed. Between the 14<sup>th</sup> and the 17<sup>th</sup> centuries the technology of plate armour developed. Solid metal plates provided better protection not only for the torso but for all parts of the body and were made to fit the more vulnerable parts of the body such as the knee and elbow, followed by the arms and legs. By the early 15<sup>th</sup> century full suits of articulated plate armour were in use.

## Making Armour

The manufacture of plate armour was a complicated process which required a number of different specialist craftsmen:

- The armourer or “hammerman” who shaped the plates
- The polisher or “millman” who polished the shaped pieces
- The locksmith who made the hinges and fastenings (only employed in larger workshops)
- The finisher who assembled the whole suit and fitted its strappings, linings, padding and leather gloves
- In the case of fine armour, etchers, gilders and painters were then employed to complete the decoration

Plate armour was made from billets of iron, which were hammered cold into flat sheets and then cut to size with large shears. Most of the plates seem to have been worked cold and only heated occasionally to allow detailed work such as the turned edges to be done. Once holes were made for rivets and other fastenings, the pieces of armour were packed on the outside with charcoal and ‘cooked’ in the oven. The charcoal reacted with the iron to form steel on the outer layer of metal, the inside remaining softer iron.

The plates were then sent to the millman who would polish them on a water powered wheel giving them a shiny finish and removing all hammer marks. The pieces were then sent back to the master armourer or finisher who assembled the suit in the right order. If the armour was to be decorated, it would then be sent on to the etchers, gilders and painters.

The most difficult design problem faced by armourers was to give protection whilst providing sufficient mobility. Wherever greater movement was needed than could be provided by a hinge— at the top of the arms or on the skirt for example— the armour was made of smaller plates called *lames*. These were attached by rivets to backing straps of leather. The rivets passed through slots in the leather and so could slide smoothly over each other.

However well a suit of armour fitted, the soldier needed protection from the constant chaffing of sheet metal and from the impact of the armour against his body. The undergarments therefore also served a vital protective role. Beneath their armour, soldiers wore a first layer of a linen shirt and underdrawers, woollen hose and shoes. On top of the shirt a padded arming doublet made of a double thickness of leather stuffed with boiled wool, prevented chaffing and acted as a shock absorber. The arming doublet had extra padding on those parts especially at risk and was reinforced with mail to protect those places too awkward for plate armour. An arming cap made of stuffed leather was fixed into the lining of the helmet to protect the skull from impact.

A suit of armour weighed between 18-27 kg and so the arming doublet also played its part in preventing too much discomfort from the drag of this weight. However, in a well-fitting suit, the weight was evenly distributed over the body and was actually less than the modern soldier carries. ‘Complete Equipment Marching Orders’ for a modern soldier is 36 kg and 53 kg for a paratrooper.

## Style

A good suit of armour could also act as a statement of fashion and status; it was very expensive. The finest armour was made in the workshops of southern Germany and northern Italy and many armourers marked their work. It was not until the time of Henry VIII, who founded an armoury at Greenwich, that armour made in England matched the quality of that made on the Continent.

The design of armour was greatly affected by changes in men’s dress. As medieval costume gave way to the puffed and slashed trunkhose and doublet, the full sleeves and blunt-toed shoes of the Tudor age, the style of armour reflected these changes. The body armour (cuirass and skirt) became full and rounded with straight cut necklines, the shoes (sabotons) rounded or square-toed.