



THE EMPEROR MAXIMILIAN IN AN ARMOURER'S SHOP.

DESCRIPTION OF PLATE I.

From the *Weisz kunig* of Hans Burgmair, representing the Emperor Maximilian learning the armourer's art and improving it. He is shown explaining to Conrad Seusenhofer, the court armourer (and maker of the fine engraved suit in the Tower of London), how to make breast plates of such temper that no arm can penetrate them. The picture gives a good idea of an armourer's shop with the forge, bellows and numerous stakes or special anvils for *repoussé* work. As further illustrating the subject we may note the following list of tools in the armourer's shop of John Blewberry in the year 1514 at Greenwich, "a vyce 13s. 4d., a great Bekehorne 60s., a small bekhorne 16s., a peyre of bellowes 30s., a pype Stake 3s. 4d., a Crest stake 4s., a vysure stake 4s., a hanging Pype stake 4s. 4d., a stake for the hedde pecys 5s., two curace stakes 10s., four peyre of Sherys 40s., three platynge hamers 8s. Three hamers for the hedde pecis 5s. A creste hamer for the hedde peces 20d., two hamers 2s. 8d., two greve hamers 3s. 4d., one meeke hamer 16d., two pleyne hamers 2s., two platynge hamers 2s., two chesels w^t an helve 8d., a creste hamer for the curace 12d., two Revetinge hamers 16d., a boos hamer 12d., Eleven ffyls 11d., a payre of pynsors 18d., two payre of tongs 16d., a harth stake 6d., two chesels and six ponchons 2s., a wat^r trowgh 18d., a temperinge barelle 12d., one Andevyle 20s., Six stokks to set in the Tolys 10s. Sixteen dobles at 16d. every doble 21s. 4d., eighteen quarters of Colys 6s. 9d. In alle £13 16s. 11d."

ARMOUR NOTES.

By VISCOUNT DILLOX, P.S.A.

The following notes cannot be considered as original work, and I have merely put them together as I think it very often useful to assemble from many and various sources what has been said on any one subject. So much that is fanciful and unreal has been written about armour, its value as a defence and its large use, that it may be useful to see from contemporary authorities what was said and thought of it. The term armour may be applied to many forms of various materials which have at different times been used for the protection of man and his companion the horse. Without going into the most ancient instances of the use of armour, we may briefly consider some of the chief varieties of it, with its advantages, drawbacks and other limitations. I may repeat again, as I have often urged before, that the amount of armour worn by the many was much less than it has suited romancists and artists to present to us. And this excess is not confined to modern times as regards either writers or artists, for one cannot believe that in the old days armour was so universal, either for the foot or horse soldier, owing to its cost and many other reasons. Then the artist, as we see in illuminated MSS., has given much more armour to many of his subjects than they could pay for or carry. We are too apt, I think, to attribute a uniformity of equipment to certain dates, forgetting that it was not till quite modern times that any large number of arms, offensive or defensive, could be produced of one pattern. When the means of interchange of ideas on dress were much less than in later times, owing to want of means of communication between distant parts of the country, it is not likely that novelties however good spread very rapidly. One may see this in the wills which have been printed in

late years, where we find northern costume, civil and military, many months behind the fashions of the south. This is the case as regards countries as well as parts of a country. The armour of Italy at the middle of the fifteenth century was generally far ahead in completeness and elegance of that to be seen on English effigies or brasses of the same period.

As is generally known now, the earlier defensive garments consisted of metal head-pieces and quilted body armour more or less fortified by pieces of metal, bone or leather, the latter in both the raw and the moulded or *cuir bouilli* forms. As time went on the metal portion of the equipment increased in quantity till, for the richer wearers, the whole body was on occasions covered with metal. I say on occasions, for it was not possible to wear complete armour of metal for long nor when very active work had to be done. Immunity from hurt had to give way to ability to hurt others, and complete armour must be taken very often as only protecting the head, arms, body and legs to the knee. Of course for the lists and the exercises there, sometimes serious, often only sports, really complete armour was often worn, and not only complete armour but also additional pieces, while the metal for such business was often much thicker than for the field. For these occasions also there was often much more ornament in the way of gilding, engraving and embossing than for the hosting armour, as the real ordinary war kit was termed. These two points, increased thickness and richness, have of course contributed largely to the preservation to our day of much armour which never saw a battle, while the lighter and more practical stuff was less able to resist the ravages of time and rust, and exciting less interest, was allowed to decay or, as happened in some instances, to undergo a change of use, and sometimes ended its days on the blacksmith's scrap heap.

But this development of the metal part of the equipment concerned only the richer people and the higher class and better paid troops. The infantryman, whether archer or billman, continued as long as armour was worn by his superiors to wear various forms of the older quilted defences, improved no doubt as time went on, but

essentially of the same general principles as in the earlier days.¹

The Elizabethan jack was not very different from the jack stuffed with mail or horn of the fourteenth century, and here again its humble and unornamented nature has prevented this class of armour surviving to any extent to our day. It, like the bill, was probably utilized and worn out in civil life; there were no museums and few collectors, and they did not care for such commonplace objects as aketons, jacks, coats of fence, etc.

We know that English iron had not in the old days the position it now holds.² We have, it is true, fine specimens of English work in some of the many grates that were originally to be seen round tombs, so many of which have been destroyed, but certainly armour does not appear to have been an English speciality. In the case of the intended combat between Bolinbroke and the Duke of Norfolk in Richard II.'s time, both the parties sent to Italy for armour for the occasion, and in wills we find mention of foreign armour, as in 1399 Sir Philip d'Arcy bequeaths "*unam loriam de Milayne.*" In 1430 Wm. Stowe leaves "*unam loriam de Milan,*" and in 1485 Richard Scrope mentions "the harnes I brought from Frawnce."

Baron de Cosson has suggested that the armour which formed the model for the famous Beauchamp effigy at Warwick was no doubt Italian, and the comparison of the effigy with Mantegna's St. George at Venice strongly supports the idea.

Of course, though the best armour came from the continent, yet there were armourers in England, and in later times English swords were made perhaps as good as those that came from abroad. Anyhow we do not meet in early days with much notice of English armour.

¹ As illustrating the defensive power of the old quilted and padded garments, it may be mentioned that in 1901, with the powerful modern gunpowder in use, two rounds of case shot fired at a flock of sheep at 150 yards only killed one and wounded six of the animals, and these were struck on the head or legs. Where the shot struck the fleece no harm was done.

² In 1559, among Considerations delivered to the Parliament:- That iron mills be banished out of the realm. Where wood was formerly sold at 11*d.* the load, by reason of the iron mills it is now at 2*s.* the load. Formerly Spanish iron was sold for five marks the ton, now there are iron mills English iron is sold at £9 the ton. Hatfield House MSS.

In 1396 the will of Symond Wynchcomb mentions six bacinettes of London make. In the 1438 Inventory of the Duke of Burgundy's property "*une paire de gantelés à la facon d'Angleterre.*"

These are a few of the instances I have met with of English-made armour. But we know that in 1355, 1386, and again in 1436, there were enactments against the London armourers raising their prices, and earlier still, in 1322, there were orders against armourers selling covered helmets before they were viewed.

In 1322 we find the following names of armourers, Roger Savage, Wm. le Toneler, John Tany, Robert de Shirwode, Richard Birdele, Thomas Carroun. But in the early sixteenth century, Henry VIII., who was a great amateur of military matters, arranged with his friend the Emperor Maximilian for the importation of German workmen. These men, known as the Almain armourers, were paid and kept by the king, who allowed them liveries. Besides these he had many other foreigners working for him in England, making arms and armour and casting artillery. In Elizabeth's time workmen from Nuremburg also were obtained, and some of these settled in the country, a few joining the Armourers' Company. In James I.'s time, however, these seem to have left the country or set up for themselves, and there was in 1634 but one German left, and he would not teach.

In Elizabeth's time, Jacob Topf, a famous German armourer, came over and worked for some time at Greenwich. To his hands we owe some of the best known armours now in England. The Hatton suit now at Windsor, a suit in the Wallace collection, one in the possession of the Company of Armourers and Braziers, one or two in the Tower, a fine suit at Wilton, and a very fine one at Appleby Castle, are all from Topf's anvil and hammer. In Vol. LI of our *Journal* I have noted under "an Elizabethan armourer" some of his work. However, he left England to occupy an important position at a German Court, and then Pickering, who copied his work, seems to have been the chief maker of armour. All this time the Government were importing Innsbruck metal for the good suits, and ready made armours from Cologne, Wesel, and other places. But, as I shall mention later

on, this ready made stuff did not come up to the standard either of what was wanted or what was good.

The civil war was the occasion for the practical use, and also the occasion for a great disuse of armour. When men had to fight and wear armour under the new conditions of warfare, it seems to have lost favour with most of those who had been accustomed to use it, and, except the helmet, armour was out of fashion. Artists, however, clung to it for its picturesque side, and so we have pictures of generals in armour who never wore anything but a breastplate and perhaps a metal *secrete*¹ in their felt hat.

Among the large purchases abroad by Henry VIII. of armour may be noted the following:—

- 1513. 5,000 Almain rivets or foot soldiers' armour from Milan.
- 1512. 2,000 Almain rivets, each consisting of a salet, a gorget, a breastplate, a backplate, and a pair of splints (short taces) from Guy de Portenary of Florence. In 1509 8s. had been paid for these, but in 1512 the price was 11s.
- 1539. 1,200 complete harness. These with carriage to London from Cologne cost £454 0s. 0d., about 7s. 6 $\frac{3}{4}$ d. each. 2,700 armours from Antwerp.

In 1561 there is a payment to John Willer of London, armourer, continually employed from April to November, concerning the transport of 500 corslets and 500 courriers from Cologne, etc., to Bremen and Hamburg for England, and bears out Sir John Smith's complaint in Harl. MS. 135. It may be of interest to note some of the places which were famous for arms and armour at various periods. Thus in 1520 Aquileia for helmets, Lombardy for haubergeons, *Fers de Glaive de Toulouse*, *Misericordes de Versy*, the three last items from the Inventory of Louis Hutin 1316; *Chapeaux de Montauban* 1466, and Henry VIII. is mentioned as wearing one on the expedition to

¹ The *secretés* or metal caps, some of them of skeleton form only, some hinged so as to fold up, were worn beneath the felt hats of the 17th century, though according to an engraving of the Siege

of Valenciennes in 1792 the metal protection is shown outside the felt hats of some dragoons, reminding one of the *Huveltes* of Agincourt.

France 1513; *Arbaleste de Catheloigne* 1471; bucklers from Barcelona in 1564; halberts from Sedan in 1580; darts from Biscay in Henry VIII.'s time; arquebuses and halberts from Metz.

As to *Epées de Bordeaux* Monsieur Giraud, keeper of the Lyons Museum, has shown in a recent work that the Bordeaux referred to was not that one so familiar to most people, *viz.* on the Garonne, but a small town in High Savoy not far from Aix les Bains, and one of many centres of steel and ironworks from very early days.

English armour, inferior as it was, seems sometimes to have been exported, as in July, 1595, when at the request of the French King, Ives Quermoller was allowed to transport out of the realm to Brest 50 armours with their furniture complete, and 100 pikes for the French King's service, on payment of the customs. (Hatfield MS.)

English bucklers and targets appear to have been thought well of, even by the Scotch, who are generally considered to have had a speciality of that class of defence. In 1525 Magnus writes to Wolsey that the 13-year-old James V. wishes much to have a buckler, and admires the English ones worn by Magnus's servants.

In 1559 the English ambassador, Randolph, writes to Sadler and Croftes, that they may do the Earl of Arran much pleasure by sending him a "tergette."

The handsome gilt and engraved buckler in the Musée d'Artillerie bears the English Royal Arms and probably belonged to Henry VIII.

The London Bucklers in the sixteenth century appear to have lived in Westminster.

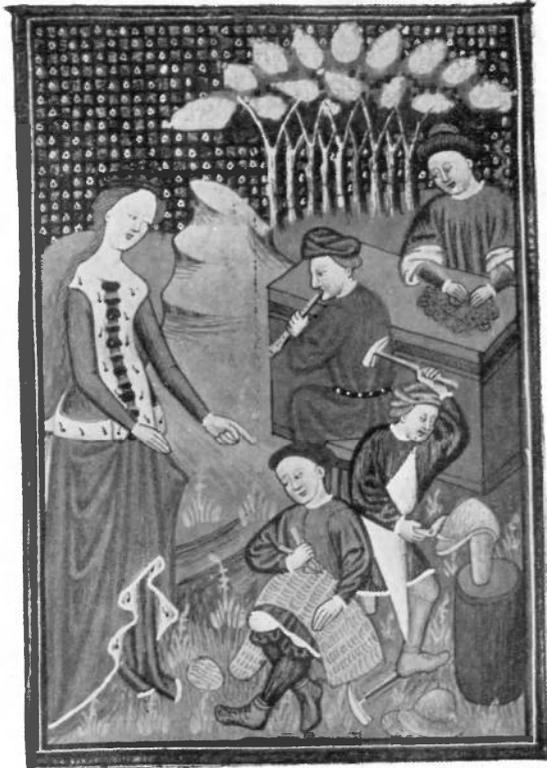
Although I do not propose in these notes to deal with the many and various forms of armour which may be included under that term, but rather with plate armour, yet it may not be out of place to note briefly some of the materials other than plate, which have been utilized for defence of the body of man and horse.

Of quilted garments of linen or other textiles there were many in use at different times, as we see from funeral monuments, brasses, painted glass, illuminated MSS., and other ancient authorities.

Louis XI. we know directed that jacks or coats of defence

DESCRIPTION OF PLATE II.

From Royal MS. 16 G 5 in the British Museum, showing an armourer and a mail maker at work. The armourer is fashioning a bascinet on a stake or anvil, while the mail maker with his pincers is evidently closing the rivets of a hauberk or shirt of chain mail. The subject of armour making is one which very seldom occurs in illuminated MSS., and considering the numerous examples of most handicrafts represented in such works, it is rather curious to find so few pictures giving views of this no doubt common occupation in the middle ages.



ARMOURERS AT WORK.

should be made of 30–36 thicknesses of linen cloth, and sometimes a deer skin to be used in addition. We are told that in such a garment the wearer would float, and indeed one thinks of the cork jacket of the lifeboatman of to-day, when we consider what these 30 or 36 folds of linen would produce. One may try the effect by folding a napkin so as to have 36 thicknesses. Then there were the jacks stuffed with horn or with metal plates of which we shall speak later on.

But less cumbrous and hardly less protective were the portions of defensive equipment made from leather, either in its uncooked form as the leather jerkin and the buff coat; or in the *cuir bouilli*, *gepressden Leder*, *cuoio cotto*, etc. The former class included gauntlets and caps, and was used by the combatants of the lower orders in judicial combats, and may be said to have survived in the gauntlets worn by many mounted branches of the army. The *cuir bouilli* we know was used in Chaucer's time and onward for many years. In the Spitzer collection was a beautifully moulded cabasset or morion of this material, belonging to the sixteenth century; it is now at Berlin. Shields in all countries have been covered with leather, and, as we see in African tribes, are in use without any wooden backing even to this day. In Indian collections of armour are frequently seen semi-transparent shields, light and tough and ornamental withal.

Other materials were also occasionally used.

In 1380 we read of a palet of gold called the Palet of Spain, pawned by Richard II. This would be a headpiece. It weighed 100 nobles. (Riley.)

Gold mail armour is said to have been worn by the famous Yermak, who was afterwards drowned in the Tirtuish in Siberia owing to the weight of this same armour.

At Eisenach, it is said, was a suit of cast iron armour which belonged to Augustus the Strong of Saxony, but such a material was wholly unsuited for armour. In 1833 was found at Bryn yr Ellyton in Wales what was formerly supposed to be a gold breastplate, but Mr. C. H. Read has shown that it was probably a peytral for a horse.

Diodorus and Polybius speak of gold armour worn by

the ancient Gauls. In 1538 on the occasion of the great muster of the citizens of London we are told that "every man being of any substance provided himself a coat of white silk and garnished their bassenets with turves like cappes of silk set with ouches, finished with chains of gold and feathers, others gilted their harness, their halberds and pollaxes, some, and especial certain goldsmiths, had their breastplates, yea and their whole harness, of silver bullion." (Grafton.)

Then also the wicker headpieces with crosses of metal on them, the *huvettes* of the English troops at Agincourt, were in a degree armour. In the inventory of the Chateau d'Amboise, made in 1499, are mentioned, "*cing ou six habillements de teste faiz de boys, les aucuns couvers a bandes de fer et de cuir.*" These look much like the *huvettes* of Agincourt.

In the inventory of Canon Arnoul de Halle, 1427, are mentioned "1 *huvette d'escaille et de plates,*" and another, "*de fier à visiere.*" They are each valued at 12*d.*

Jazerant, chesserant, gestorne, gestron, gestrum, jestraunt, were terms for scale armour, the small scales being riveted to a foundation of canvas or stout material. The scales generally showed on the face of the garment or defence, and we find body armour, gorgets,¹ habergeons,² standards³ or neck defences, and even the camail⁴ of this class of armour.

1462—1469. J. Howard, Duke of Norfolk, a jestraunt of mayle.

1444. John Danby, *gestrum deargentatum.*

1498. Thos. Petyt, a jestorne of mayle.

1524. John Jackson, a gesteron covered with buckskyns.

Almain rivets occur so often in inventories, etc., and are so frequently misunderstood, that it may be well to explain that the term was used in 1512 for complete harness for a foot soldier, and according to a contract for supply, consisted of a salet, a gorget, a breastplate, a back plate, and a pair of splints (or short taces).

¹ Louis X., 1316.

² Will of Sir B. Salwayne, 1420.

³ Will of Thomas Packet, 1465.

⁴ French Royal Accounts, 1411.

In 1579 it is mentioned that Almain rivets are now out of use, and in lieu of them a corselett shall be found.

The rivets varied in cost; in 1509 they were to be had for 8s., in 1512 they were imported at 16s., and again in 1513 they were to be had at 11s.

They are sometimes spoken of as a set, at other times as a pair, and sometimes, as by Hall, as a rivet.

Animes occur often in documents of the sixteenth century, and consisted of armour formed of narrow horizontal *lames* or strips. In 1548 they are mentioned in France as "*corcelets ou animes*."

The name was a corruption of *lamine*.

Brigandines, breggoners, brekerners, bregance, brig-handers, brigerdyns, *etc.*, were the various terms for the body defence which consisted of small overlapping plates of metal riveted to a foundation of canvas and faced with some textile such as velvet, silk, *etc.* The rivet heads, often ornamental and gilt, showed through the facing and gave the brilliant spotted appearance so often seen in illuminated MSS.

The brigandines were often costly and were not much lighter, if at all so, than plate armour, but they were flexible, and though the metal plates were thin, yet every part had two thicknesses of metal. Sometimes, as mentioned by Commines, "*le duc de Berri et le duc de Bretagne chevauchèrent sur petites haquenées à leur aise, armés de petites brigandines fort legeres pour le plus. Encore dissent aucuns qu'il n'y avait que de petits cloux dorés par dessus le satin à fin de moins leur peser, toutefois je ne scay pas de vrai.*"

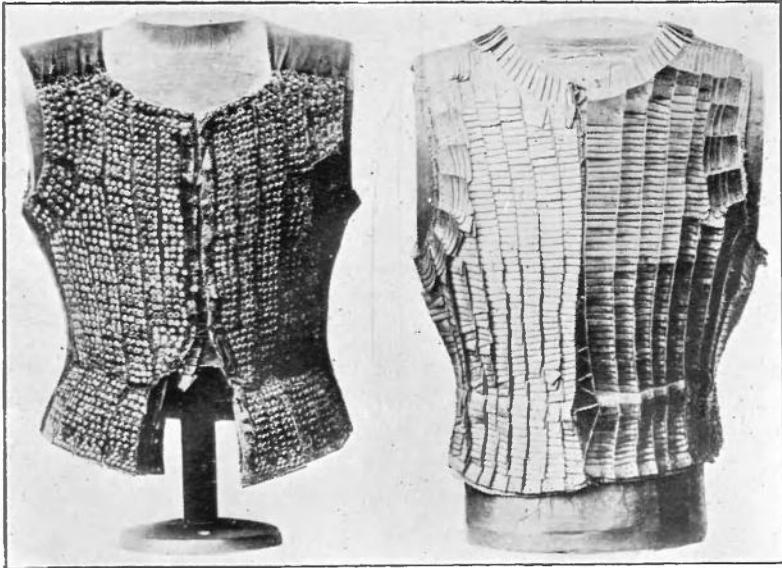
According to the statutes of the armourers of Angers, 1488, the brigandines proof against the large cross bow would weigh 26–27 lbs., those proof against smaller cross bows and long bows 18–20 lbs. These brigandines were to have leather between the metal plates (which were well filed at their margins) and the canvas.

In the accounts of Sir John Howard (Roxburgh Society) is a payment under the year 1465, "for 20,000 Bregander nayle, 11s. 8d."

From a note in Thomas Cromwell's account in 1537 we are told that £4 was paid to an Italian "for making a privy coat for my Lord," but it is not stated if the

DESCRIPTION OF PLATE III.

This plate shows the outside and inside of a brigandine now in the Musée d'Artillerie at Paris. The small gilt rivet heads on a ground of crimson velvet present a brilliant appearance, while the overlapping steel plates, seen on the inside, show the flexible but effective defences afforded by such an arrangement. In some instances the vertical series of plates are separated or rather connected by strips of chain mail. The garment, though perhaps not lighter than plate armour, is very flexible and not less protective to the wearer.



A BRIGANDINE IN THE MUSÉE D'ARTILLERIE, PARIS.

materials were included in the cost. The same account mention £4 for six northern jacks.

The so-called canvas coat of Sir Hugh Willoughby, now at Wollaton Hall, is an Elizabethan instance of a jack stuffed with horn, such as occurs in the Fastolfe Inventory of 1459. It is formed of stout canvas inside and out, with a layer of tow on each side of a series of horn discs. These discs, about 1 inch in diameter and $\frac{1}{4}$ inch thick, overlap each other tile fashion upwards. They each have a hole in the centre through which cord is passed, and also through the canvas and the tow in such a manner as to retain the discs in their places and to prevent the tow from getting into lumps. The cords appear on each face of the garment in the form of small triangles and lines. The cord used is blue, but in a portrait of Willoughby, now in the painted gallery at Greenwich, which shows him wearing such a jack, the cords are red, and merely look like lines of ornament. Probably many other pictures of the date also represent similar defensive garments, though appearing to be civil costume. The coat, to make it flexible, is composed of six panels, two for the breast, two for the back, and two small ones for the shoulders. The back panels and the hinder portions of the breast have the ordinary iron or steel plates without tow. The collar also has two rows of metal plates in the lower part, the upper half being merely quilted. It is curious that the metal defence should be for the back, and what would be less strong reserved for the front of this famous navigator. As in the case of the iron jacks, there were two thicknesses of the defensive material over the whole body. I am sorry I cannot say what the weight of this horn jack was, but clearly it was less than that of the Tower metal ones, which weigh about 18 lbs. each.

The Tower jacks are also made in panels, two for the breast, two for the back, and four smaller ones for the lappets below the waist. In the front there are 592 metal plates, and in the back 572, making a total of 1,164 for the whole garment. This may be compared with a note in the Shuttleworth accounts of 1588 published by the Chetham Society. In this we find $9\frac{1}{4}$ yards of linen and canvas to make a steel coat, and for a pound of slape (pitch) and some more 7s. 1*d.* Two dozen of thread

points for two plate coats 6*d.* ; 1,400 steel plates for a steel coat 8*s.* ; 1,650 steel plates for another steel coat 9*s.* 6*d.* From this we may reckon that the materials for such a coat amounted to 15*s.* 4*d.* to 16*s.* 10*d.* The cost of making up the coat would be about 3*s.* or 4*s.*, and so the whole would come to about £1. Of course the making of such a coat did not require any great skill, and its powers of defence were probably quite equal to those of the cuirass, when we consider the weak powder of those days. The weight might be more than that of the breast and back of plate, but the flexibility of the jack was very much in its favour.

In the British Museum is a cap of the same construction as the jacks but of smaller plates. It was found at Davington Priory, and is figured in Vol. XIV. of the *Journal* of the Institute. The plates are about $\frac{3}{4}$ inch square, and the appearance of the whole is very similar to that of the Tower jacks, in which the plates are about $1\frac{1}{2}$ inches square. In both cases the corners of the plates are cut off to increase the flexibility of the whole.

In the Lifruskammer at Stockholm is still preserved part of the dress of Gustavus Adolphus, and one of the interesting details of it is the series of steel plates or strips inserted (like stay bones) in the sleeves. These strips are about 6 inches by $\frac{1}{2}$ inch and would form a very fair defence to the powder of that day. Gustavus, we know, did not wear his cuirass at Lutzen on account of recent wounds which pained him, and the buff coat he did wear was insufficient protection against the pistol bullets at close quarters.

The term *nudus miles* often occurs in old documents, and Sir John Smith and others of his day speak of "naked men," both terms of course applying to the soldier without defensive armour. The pay of such was proportionately lower than that of the man who wore ever so little armour, for his efficiency as a fighting unit was in old times held at a low figure.

There is another expression of rare occurrence which is referred to in the reign of Elizabeth, and that is "a dry Pike." In 1589, under date September 7, are mentioned several orderings of soldiers employed in the late Portugal Voyage, such as harquebusier, dry pike, armed pike,

musketeer. Of these the harquebusier's pay was 20s. per month, his coat cost 10s. and his caliver, flask and furniture 13s. 4d. The dry pike received the same pay, but his coat cost 13s. 4d., and his armament consisted of a dry pike, sword and dagger costing 8s. 6d. The armed pike had similar pay, but his coat cost only 10s., and his pike and corslet cost 25s. From this it seems that the dry pike wore no armour but had a costlier coat. This might well be, as it was his exterior garment, and not hidden by armour such as the arming doublet was. Anyhow it is an unusual expression.

As to the exterior of armour we know that it was often painted as we see in illustrated MSS., where it is sometimes coloured heraldically.

In 1322 in the will of Humphrey de Bohun occurs "1 *bacynette covert de cuir.*"

It was also sometimes tinned, as in the Dover Inventories of 1344.

In 1390-1 Bolinbroke's accounts, when on his travels in Germany, mention "*pro panno albo et blodio pro coopertura basenetti domini.*"

In 1571 the will of John Heworth mentions "a stele cap w^t a covering."

In 1578 "one stele cap with a cover" occurs in the will of J. Lawson, and in 1582 "stele caps covered with black," and "covers for stele caps" are noted in the will of Wm. Lee and T. Crawe.

In 1577 John Billingham bequeaths "a red siele cap covering."

In 1547 "Murrions covered with black blew yellow and crimson velvet and garnished with passemyne lace, also 2 covered with crimson satin" are mentioned.

In the Lancashire Lieutenantcy Accounts of Elizabeth's time the archer's dress includes his "scull and Scottish cap to cover the same 3s. 4d."

According to Bulstrode the only armour Charles I. wore at Naseby was a steel hat covered with black velvet. This hat is said to be the broad brimmed hat now at Warwick Castle. Similar hats are shown in pictures as worn by the gentlemen of the Maison du Roi in the seventeenth century in France.

Again when Pepys went to see James duke of York

in March, 1664, when James was about to go to sea, he "saw him try on his buff coat and hat-piece covered with black velvet."

As to the body armour we know that the surcoat, often armored, was worn of different fashions for two or three centuries over the armour, and late in the fifteenth century we see the tabard form of surcoat. Henry VIII., who like many other Englishmen affected foreign fashions, is often mentioned as having silk garments over his armour. In Spain this garment often passed diagonally across the body; it was called a *Saya*.

When Henry VIII. landed in France in 1514 he is described as wearing over his armour a garment of white cloth of gold with a red cross. This custom seems to have been very common on the continent, and even later, in the portrait of George earl of Cumberland at Skipton, he is shown with a rich dress over his armour, which is visible only at the neck, forearms and legs.

In Vienna are several helmets covered with silks and satins, and at Stockholm in the Lifruskammer is a very richly embroidered helmet cover trimmed with pearls, *etc.*

Hazlerigg's "lobsters" were so called, according to Clarendon, on account of their bright shells, but we know that much armour in the Civil War time was painted and russeted, and our usual idea of a lobster is black or red. Hazlerigg's men were evidently not in red armour, so for want of more evidence we must suppose them to have been black. The black armour in the Dresden Armoury is pitched and is not bright. Though the idea of the Black Prince deriving his soubriquet from his armour is absurd, yet we are told that at the funeral of Henry V. black armour was worn.

A very important point with regard to wearing armour was the garment that was immediately beneath the metal casing of the man. Ordinary clothes were not suited for this, and Chaucer's knight, we are told, on his pilgrimage wore a gipon of fustian that was "alle besmotred with his habergeon." This was evidently a garment he was accustomed to wear beneath his mail shirt, and it had become soiled in consequence. Such a

coat was clearly good enough for a pilgrimage in mixed company, and the knight, like his horse, "was good but he was not gale." Fustian we find mentioned as the under garment worn in Germany by knights about to engage in single combat, and in Lord Hastings' MS., when we are told how a man shall be armed at his ease when he shall fight on foot, his "hausement" was to be "a dowbelet of fustean lyned with satene."

Fustian was used up till the discontinuance of armour, for the underwear. The head-pieces also had their lining, either fixed to a strap which itself was riveted to the metal, or else a cap worn inside the head-piece.

For tilting with the big helm of the fifteenth century a stout padded cap with a special arrangement of straps to keep it and the helm in proper relation to each other was used. Specimens of these exist at Vienna, and an interesting account with illustrations of the cap is to be found in Vol. II of the *Zeitschrift für Historische Waffenkunde* by the late Wendelin Boheim.

Among Henry V.'s retinue at Agincourt is mentioned Nicholas Brampton, "stuffer of bacynets."

In 1386, in the challenge of the Chevalier de Tourne- mine mentioned by Lobineau is "*un chaperon à mettre sous mon bacinet de drap de sendal ou de satten cousu et garni de fil et de soie.*"

"*Un bacinet à visière de fer ou de leton estoffe de cervelière de toile de chanvre et de lin de cendal de coton ou de soie.*"

In the Archives of Lille, 1414, is a payment:—

"For 2 *cottes d'armes* and for *cendal* to line the said *cottes.*"

In the 1499 Chateau d'Amboise inventory with the so-called armour of Joan of Arc is mentioned "*un habillement de teste où il y a un gorgeray de maille, le bort dore le dedans de satin cramoisy double de mesme.*"

In the Archives of Lille, 1432:—

"*Un demi paletot à mettre dessoubz les brigandines.*"

In the years 1519–1523 are frequent mentions of yellow and crimson satin for lining the headpieces, collars, pas- guards, *mains de fer* and gauntlets of Henry VIII. The lining consisted of carded wool which was quilted in canvas and covered with the satin. Of course these

linings have not lasted to our day, but there is in the Tower of London a tilting helmet of Sir Henry Lee's made in Elizabeth's time by Jacob Topf, and still having in it a felted lining which conforms to the shape of the head-piece. A perhaps earlier instance in the same collection is that of a light visored *salade* such as worn by mounted archers. The *salade* formerly in the de Cosson collection still has much of its canvas lining which was fastened to it, being sewn through small holes arranged in pairs along the margin of the metal.

In 1580 when certain light horsemen for Ireland were found by the authorities of St. Paul's, the doublets are mentioned as being of Milan fustian and lined in some cases with Holines fustian, in others with strong canvas. The sleeves of "mayle" at 14s. the pair were also lined with canvas.

Sir John Smith also advises that the soldiers' doublets should be made of fustian "according to the use of all antiquitie," or of chamois skinnies as well in respect of lasting, as that a man may arm better upon any or both of these things than upon canvas or anything that is more smooth and less woolly.

They should be narrow in the shoulders and so small in the sleeves and with so little bumbast that the vambraces of armed men might easily close together. The doublets should be cut flat upon the belly and waisted of like length to the cuirass, so that the armour may fit more just and flat to the body. But as "the collers of armours do bear the chief weight of the rest of the armour," he advises that both horsemen and foot should either have under-collars of fustian conveniently bumbasted to defend the "heveth and poise of their armours from the paining and hurting of their shoulders and necks," or else that the doublets should be "very well bumbasted in all that part under their collers both before and behind."

Here we have reference to the inconvenient strain on the shoulders felt at all times by armed men, and we may refer back to the early part of the century, when in the case of the earl of Northumberland about to proceed to France in 1513 we are told of "a trusyng boulder of white fustian for my Lord to wear about his myddell under his harnes for berryng up of the currese."

The earl also had "2 arming pateletts of white satten quilted and lyned with lynnenn cloth for my Lord to were under his harnes." These pateletts or partlets were the "under collars" mentioned by Sir John Smith, and his arming doublets were of crimson and green satin with a "french styche" and white satin "quilted lozenwyse." Under his leg armour he had arming hose with "lapes" and for his feet arming "shone" black, white, red, yellow, and white leather covered with black velvet.

A propos of the damage to the underwear by armour, James Croft, writing to Cecil from Berwick, 1st July, 1559, mentions that "all who could provide armour were to have 2*d.* a day more than the 'naked man.' The Council supplied some captains on credit, others sent to Flanders at great cost. Every man that has a corslet has 9*d.* and the captain keeps 1*d.* till the armour is paid for, but when it is his (the man's) own he cannot keep it and pay for the harm it does his other apparel under 8*d.* a day."

Sir John Smith in his *Animadversions*, 1591, says: "no armed man should wear any cut doublets, as well in respect that the wearing of armour doth quickly fret them out and also by reason that the corners and edges of the lames and joints of the armours do take such hold upon such cuttes, as they do hinder the quick and sudden arming of men."

In 1622 Gervase Markham in his *Decades of Epistles of War*, says: "The shot should have on his head a good and sufficient Spanish morian well lined in the head with a quilted cap of strong linen and bound down with lined ear plates."

In 1643 the same author in his *Soldier's Accidence* says that the shot should have "good comb caps well lined with quilted caps."

Armour was in many cases made to measure.

In the will of Sir Ralph Bulmer, 1406, is mentioned "*armatura mea corpori talliata.*"

In 1470 Baltazar du Cornet, armourer at Bruges, delivers for the Duke of Burgundy "2 *cuiraches complettes faites à la mesure de Monseigneur*" for 48 livres each. And in the same year Lazarus de St. Augustin delivers "*un harnais complet fait naguère à la mesure de Monseigneur*"

et pour sa corps." In 1512 a jacket and hose of young Prince Charles (Charles V.) was sent to Conrad Seusenhofer to serve as a pattern for a suit of armour for the boy, then 12 years old.

The engraved suit of Henry VIII. in the Tower of London, made by the same armourer by order of Maximilian, was also made to measure. In 1520 Francis I. asks for an arming doublet of Henry VIII. so that he may send him a new kind of cuirass.

In December, 1532, Carlo Capello writes to the Signory, "The Duke of Norfolk requests me to have sent for him hither a perfectly impenetrable cuirass of those made at Brescia, and the Earl of Wiltshire wants another for himself and one for his brother, and the Treasurer and Donn Cromwell make a like demand, so that they will be 5 in all with their coverings, and they say they will pay for them." The writer encloses the measurements.

In February, 1533, the Doge and Senate write to Capello, "concerning the cuirasses we have given orders for them to be made at Brescia, and as soon as they can be got, we will courteously transmit them." The voting on this occasion was Ayes 171, Noes and Neutrals 7. The college to be authorized to disburse what shall be necessary for the making of five cuirasses, and to send them as a present to these noblemen in England who have asked for them, "the whole with the moneys of our Signory." Ayes 177, Noes 7, Neutrals 3.

In March, 1534, Chapuys writes to the Emperor and mentions certain visits of the Venetian ambassador to Court . . . perhaps to present the Duke of Norfolk, the Earl of Voulchier (Wiltshire) and his son (George), Master Cromwell and Treasurer Fen Villien (Fitz William) with *certainnes brigantinez secretez faictes des calliez (d'écailles) gorgioses et richez que la Signori de Venize leur à envoyé.*"

The above simple description of certain gorgeous brigandines of scale armour, that is privy coats of scale, has been translated by the late Senor Guyangos, as "gorgeous brigandines made of tortoiseshell and mother of pearl with secret drawers."

This is a good example of a translator's licence in



FIG. 1.



FIG. 2.

The two figures shown here are from Jost Ausman's book of trades, and represent the *Platner* or armorer and the *Panzermacher* or mail maker. The former is beating into shape a piece of metal for some part of the armour, specimens of which are seen on the shop board, while the latter is apparently closing the rivets of chain mail.

dealing with two languages other than his own. These brigandines were evidently of proof against all arms.

Measurements were sent for these cuirasses to Brescia.

As to trials of armour with the consequent proof marks, a very interesting work by Monsieur Buttin of Rumilly, Haute Savoie, shows that the custom of putting proof marks on armour was an old one. In some cases the proof mark referred to the power to resist the quarrel or bolt of the large crossbow, in others of the smaller weapon. Later on the system was applied to armour showing its ability to resist the bullet of the musket, caliver, or pistol. On the Continent these proof marks are very common, and in collections in this country they may be seen in many instances. But with one exception to be noted later on, we do not find the marks of proof referred to with regard to English made armour. The expressions of high proof, musket proof, caliver proof, pistol proof, or merely of proof are very common in the writings of the authors of the late sixteenth and early seventeenth centuries, but we do not as a rule hear of the armour being tested, and it is only the opinion of the military author that we have to guide us beyond what we can judge from inspection of the armour.

The instance referred to of a trial of armour as to its ability to resist firearms is one related at full length in Vol. L of *Archaeologia*. To put it briefly, a gentleman of Shropshire claimed to have on his property iron which was as good for armour as that used by the English authorities, which was imported from Innsbruck, or as it was then called Isebrook. After some delay the Master of the Armouries of that period (1590), Sir Henry Lee, had a breastplate made of this Shropshire iron similar as regards all respects and weight to one of the foreign or as it was called Hungere iron. A trial was then made with two pistols with equal charges, and the result was that while the foreign metal only sustained a slight dent, the English metal let the bullet through and it tore off a piece of the beam on which the breast rested. Unfortunately we have no details as to the distance or the charge of powder, but it satisfied Sir Henry Lee that the Shropshire metal was not good enough, and the

importation of iron from Innsbruck went on into Charles I.'s reign. Other attempts had been made at various times to utilize the native product, and even in 1530 in the time of Henry VIII. his friend, Sir Laurence Starber, took over some of the English ore to Germany to see if it was available for use. Nothing is known as to the result of that inquiry, but it was doubtless unfavourable to our metal.

Among the armour in the Tower of London bearing proof marks may be noted the skull piece of a stout bascinet which belonged to Henry VIII. This bears the mark twice repeated, which means that the metal was proof against the large crossbow. The armour of James II. consisting only of cap, breast, back, and long elbow gauntlet for the bridle arm, bears on the breast and back bullet marks which are not the result of war but really proof marks. In this case the marks have been left alone, but on an engraved but very ugly suit of Louis XIV. in the Musée d'Artillerie¹ the proof marks have been treated as centres round which to engrave flowers and foliage, so as to rather conceal the practical object of the marks, much as the letter D on a deserter's breast has sometimes been amplified by tattooing so as to nearly quite disguise the original stigma.

In 1513 Richard Thyrkill writing to Henry VIII. from Antwerp, says he "can find no harness of the *fleur de lis* in any part of Brabant." A brigandine in the grand ducal museum at Darmstadt bears on each of the scales or small plates of metal the stamp of a *fleur de lis*. This stamp is shown in one case twice repeated on the same scale or plate in René de Bellevue's *Costume militaire des Français en 1446*. M. Buttin considers this double stamping an evidence of the brigandine being proof against the *arbalète à tour*.

This brigandine and a scale of it are also figured by Hefner, Pl. 62, Vol. II, also in Hewitt, III, 550.

THE CLEANING OF ARMOUR.

In early days we find many mentions of barrels for cleaning the chain mail.

¹ See Plate IV.

In the 1364 inventory of the donjon de Vostieza occurs, "1 *barellum ad forbiendum malliam.*"

Dover Castle inventory, 1344, "1 *barelle pro armaturis rollandis.*"

In *Syr Gawayn*, the hawberk is cleaned by being "rokked."

Winchester College inventory 1413-1450, "1 *barelle pro loriciis purgandis.*"

In 1467 the Howard Household book mentions 9*d.* "to an armerer at Pawles Cheyne for an harneys barelle."

In 1603 in the Hengrave Inventory, "one barell to make clean the shirt of maile and gorgetts."

In 1513, when the earl of Northumberland went to the siege of Terouanne, amongst his stores were, "4 lbs. of emmery for dressyng My Lord's harnes and oyle for dressyng of my Lord's harnes." He also took "a quarter of a hide of garnysshinge lether, 200 white armyng bokylls and a thousand armyng nayles for mending my Lord's harnes." Besides these "a payre of nyppers, a payre of pynsores, a pomyshe (a piece of pumice stone) 2 fylles, a small stithe, a hammer and all other stuffe and tools belonging to an armorer." Eight yards of white "blaunkett" were used "for trussing of my Lord's harnes in."

In 1520, 12*d.* a piece was charged for cleaning Almaine rivets brought from Calais, and 4*d.* per suit for new buckling, leathering and mending.

In 1564, 5*d.* was charged for cleaning each shirt of mail and 2*d.* each for sleeves.

The keeping clean of armour used at sea appears to have been dealt with differently, for in 1564 there are payments for painting not only headpieces but also corslets or body armour at 5*s.* the suit, as "by reason of the salt water they will by no means be kept clean except they be blacked."

In Lansdowne MS. 73 is a petition by William Poore "that his remedy for preserving armour from pewtrifying kankering or rusting might be employed." However, he does not tell us how this was effected.

1617. Wolfen Miller, John Caspar Wolfen, and John Miller applied for a patent for 21 years "for a certain oyle

to keep armour and armes from rust and kanker," for £10 per annum.

In the Wardrobe expenses in Prussia of Boliubroke earl of Derby. 1391-1393. Printed by the Camden Society.

fol. 32. *pro j cofre. . . . ad imponendum scuta domini xvij scot.*

f. 33. *pro j house pro scuto domini. . . . ix scot xijd.*

f. 17. *pro panno albo et blodeo. . . . pro cooperatura basenetti domini una cum factura eiusdem vjs. viijd. st.*

f. 15. *pro mailez pro plates domini vjs. viijd. st.*
pro 1 par bowges pro legg harneys domini iiij scot.

f. 40. *pro 1 brestplate domini purgando ibidem ijli. vijs.*

It is also mentioned that there was beside the "*cofre ad imponendum scuta domini*" also a "hous" or covering for the banner and another for the pennon.

At Henry VIII.'s death there was at Greenwich "a buckler of steele painted, in a case of leather."

In 1472 the Chronicle of Troyes mentions that French men-at-arms were forbidden to carry their arms in paniers. But about the same date in the description of some of the famous *pas d'armes* in which Jacques Lalain took a part, the armour of the combatants was brought into the lists in paniers on horses.

In an engraving of Charles I. by Wm. Hole, an example of which is in the British Museum (see reproductions 1901), we see a box made specially for the holding of a breast and back plate.

Of the actual weight of armour we can only judge by suits now existing, and even then allowance must be made for small deficiencies, as in the case of leather straps, not only those visible but also those fastened by rivets near the margins of certain parts, and to which linings of quilted material were attached. These linings of course could be detached without interfering with the rivets.

The engraved suit of Henry VIII. was for the field and without the gauntlets (which have been lost) weighs 63 lbs. 11 ozs. ; of this 9 lbs. 3 ozs. represents the helmet. The suit of the Earl of Worcester weighs about 103 lbs.,

and of this the helmet weighs 11 lbs. The burgonet and buffe for this suit is 10 lbs. 6 ozs. The Leicester suit, which is for the tilt yard, weighs 73 lbs., and the extra pieces 16 lbs. 6 ozs. The helmet is 8 lbs. 14 ozs. The suit of Sir John Smith, parts of which are at Windsor, weighs $55\frac{1}{2}$ lbs., the helmet being 8 lbs. 11 ozs. The Charles I. gilt suit weighs 78 lbs., and of this the helmet is $10\frac{3}{4}$ lbs. I have taken these suits as they cover the wearer from head to foot, and I note the weight of the helmet as being that which the man's neck has to bear.

The ordinary morion of Elizabeth's time weighed about 3 lbs., the "pikeman's pott" of the civil war about $2\frac{3}{4}$ lbs., and the horseman's barred helmet of the same period about $5\frac{1}{2}$ lbs.

The Elizabethan soldier's jack weighs about 18 lbs., and the rich brigandines one sees in foreign armouries were about the same. These, however, rarely had sleeves, and so were not so irksome as chain mail shirts, which though not so heavy were a great drag on the wearer.

Sir John Smith (1591) speaks of the disadvantages of the system in which the rerebraces and vambraces were fastened by points to the arming doublet or jacket, whereas the armour which had the arm defences dependent on pins at the sides of the gorget made the weight much less cumbersome. In the Duke of Northumberland's "boulster," page 112, we see an endeavour to transfer the burden usually pressing on the shoulders to the hips.

Leg armour when worn, and it was but seldom carried, must have been a severe drag on the wearer. We see that the cuissards were hung by a forked strap to the waist, and the horseman's cuissards, which were necessarily long to allow of the bent legs on horseback, would, when the wearer was dismounted, much cripple his movements. Hence we find the cuissards made of two or three sets of lames which with turning pins could be attached to each other for mounted use, and for dismounted service could be separated so as to leave the upper portions as short taces, while the lower legs would be cased in long boots.

The horseman's *salade* figured by Hefner, and now in the

Tower, weighs 3 lbs. 2 ozs. Baron de Cosson's similar but unpainted visored *salade* with some of its lining weighs 5 lbs.

The Venetian *salades* also in the Tower resembling the old Greek helmets and all three bearing armourer's stamps, weigh from 5 lbs. to 5 lbs. 4 ozs.

The Italian helmets with semicircular shades over the eye openings, said to have been worn in 1602 by the soldiers of Brunalieu, weigh about 10 lbs. each. The combed morions in the Tower weigh $2\frac{1}{2}$ to $3\frac{1}{2}$ lbs.

The Commonwealth "potts" are about 3 lbs. each. A so-called morion weighing 9 lbs. is evidently not a head-piece, but a "double" or metal last on which to close the later headpieces formed of two pieces of metal, the edges lapped one over the other and riveted. The light "secretes" or skeleton metal linings for felt hats weigh about 5 ozs. each.

In 1627 one Whetstone had a project to make armour "lighter and as good as proof," but we are not told how it was to be effected.

The weight of armour more than once has proved a source of danger and death to its wearer.

In 1526 Louis, king of Hungary, fleeing from the battle of Mohatz, when attempting to cross the Duno (? Danube) his horse fell under him, and he, overcome with the "poiz" of his armour, was drowned.

S.P.D. 260, 1, IV, p. 2.

And after Lord William Howard's wedding, 29th June, 1536, a letter to Lord Lisle tells how after a sham fight on the river, "a gentleman named Gates being in harness tried to leap into another boat and fell short and was drowned." The writer of the letter remarks, "men did not marvel greatly that knew him, of his misfortune, for he was so great a swearer." It is probable the weight of his armour was more directly the cause of his death than his bad language.

In 1533 Caesar Ferramosci writes to Henry VIII. that the Emperor sends him six Spanish horses partly broken in to heavy armour.

The weight of armour was utilized in one instance that we may mention. On the voyage of the Portugal expedition in 1589 Sir James Hales, the Treasurer to the

expedition, died at sea, and instead of the shot in the hammock of later times, he was lowered in his armour into the sea. This is represented on his monument erected in Canterbury Cathedral by Richard Lee, who married his widow.

WHAT COULD BE DONE WITH ARMOUR ON.

At Troyes in 1380 an English squire, a native of the Bishopric of Lincoln, an excellent man-at-arms, with his lance in his rest, and his target on his neck, made his horse leap over the bars of the barriers, and came to the gate where the Duke of Burgundy, surrounded by the French nobility, was, who looked on this enterprise with amazement. However, he was unable to return as he intended, for he received a blow from a spear which felled his horse and killed him. Froissart.

At Noyon Sir John Assueton (? Seton) when armed dismounts, and spear in hand leaps over the barriers. After fighting for more than an hour and wounding two of his opponents he again, spear in hand, leaps over the barriers, and still armed as he was jumps up behind the page on his courser, and calling to the French, "Adieu, gentlemen, many thanks to you," he rides off to his companions. Froissart, I, ch. 285.

Henry V. when courting Katherine, says, "If I could win a lady at leapfrog or by vaulting into my saddle with my armour on my back," and he evidently claimed to be able to do so. Monluc, speaking of Count Pedro d'Apport or de Porto, says he was "*un des plus dispos hommes d'Italie . . . il n'y avoit cheval si grand pourveu qu'il peust prendre larson qu'il ne se mist en selle arme de toutes pieces.*" The Chevalier Bayard also, when captured at Milan by Ludovico Sforza, was presented by him with his horse and arms, and he, though armed, "*monta sur son cheval sans mestre pied à l'estrief.*"

Louis XII. rode so well that "*pour saut ou rouade que fit son cheval,*" one would not hear a piece of his armour shake.

At Arras in 1446, Galiot de Balthasin, who was *armé*

de tout, la cotte d'armes au dos, when he entered the lists leaped clear out of his saddle as lightly as though he had on a pourpoint only. O. de la Marche.

At the end of the sixteenth century there was a great division of opinion as to the size and advantages of armour. Many writers spoke strongly against the wearing of it, alleging that it distressed the men and was not sufficient defence against fire arms to warrant a continuance of the practice of wearing it. On the other hand, equally weighty authorities declaimed against the increasing dislike to armour, and quoted reasons for its being mentioned as the soldier's costume. From the following extracts it would seem as though the men of the armour-wearing days were stronger than the later race, much as Bishop Latimer complained of the inferior bowmen of his day as compared with the men of the fifteenth century.

La Noue writing 1575-1590 says, "Moreover as there is good reason owing to the violence of musketry and pistol fire, to make armour more massive and of better proof than formerly, this has been carried so far that most men are laden with anvils rather than covered with armour. The defensive armour of nowadays is so heavy that at thirty-five years of age a gentleman has his shoulders quite crippled by such burdens. In days bygone I have seen the late M. d'Eguilli and the Chevalier de Puigressier, worthy old men, continuing for the whole of a long day marching at the head of their companies, whilst nowadays younger captains would or could not last for two hours under similar conditions."

We may now note instances of armour failing to protect the wearer, and it was not so uncommon as the stoutness of mail would lead one to expect.

Froissart notes in 1360 that at Chargny the Lord of Mucident was mortally wounded by a stone which passed through his armour.

At the Chateau d'Amboise was preserved a sword said to have belonged to Jean de Brézé, with which he had cut off the hand of a man-at-arms with the canon or vambrace and the gauntlet.

At the siege of Nantes (1380) Sir Thomas de Roddes, a knight from Germany, was struck by an arrow which

pierced quite through his helmet, of which wound he died three days after. Froissart, II, ch. 60.

A few days later an English knight, Sir Hugh Kitiel, died from a blow on his helmet from a bolt.

At a tournament at the same place the Lord de Pousanges received such a stroke from a lance that it pierced through the mail and steel breast-plate and everything underneath so that the blood gushed out.

In a joust between Nicholas Clifford and John Boucmel at Chateau Josselin, Clifford's lance slipping off the breast-plate pierced the camail of good mail, and entering his neck cut the jugular vein so that Boucmel died.

Heliot de Calais was knocked off his horse by a violent stroke on the throat piece with a spear whose broad point was as sharp and fine as a razor. This iron cut through the throat piece as well as all the veins. He died shortly after. Froissart, II, ch. 2.

When Richard earl of Warwick jousted with a mighty duke for his lady's sake, the travelled Englishman sent his spear half a yard through the duke in the presence of the Emperor Sigismund, as we see in John Rous's life of the earl, Cott. MS. Julius E. IV.

In 1504 at the jousts in Paris on the arrival of Anne of Brittany, François de Maugiron struck Supplanville so sharply that the lance went clean through his body and he fell dead.

In 1414 at the siege of Soissons by Charles VI., Hector Bastard de Bourbon "*fut navré d'une flèche parmi le gorgerin qui fut faulse tot oultre tant que le fer de ladite flesche entra dedans la gorge de Messire Hector, de laquelle bleicheure il alla de vie à trespas.*"

In 1467, at the combat between the Bastard of Burgundy and Lord Scales, Ollivier la Marche says he saw afterwards Lord Scales' armour, on which the Bastard had made "*de grandes faulcées de la dague de dessous de sa hache.*"

1525. "The king with his sword poynt and edge abated had almost cut his (Sir Anthouy Browne's) poldron, his strokes were so great." Hall.

At the battle of Marignan Francis I. was in great danger, according to Brantorne, for "*la grande buffe lui fut percée à jour d'un coup de picque.*"

Patten mentions that at the battle of Pinkie, 1547, Sir Thomas Darcy "was struck glancing on the right side with a bullet of one of the (Scotch) field pieces, and thereby his body bruised with the bowing in of his harness."

"p. 166. *Nos gens d'armes portoient en ce temps la de grands coutelas tranchans pour couper les bras mailliez et destranger les morions.*" Monluc, 1521-1547.

Sully mentions that at the assault on the great trench at St. Catherine, he was twice thrown to the ground, his halbert broken and his armour loosened and broken in pieces. See also Vol. LV of this *Journal*, p. 301, showing the difference in strength between tilting and hosting harness.

At the siege of Rouen in 1591 "Captain Powre was shot with a chayne bullet which fell so flatt upon a bombast doublet that it entered not but bruised him much."

"At Terrouane Monsieur de Plessis, lifting up his sword to strike, was with an arrow shot at the arm-hole through his gusset of maile and there slaine."

Sir J. Smythe, p. 34.

Lord Brook was shot with a musket ball through the visor of his helmet, at Lichfield, on St. Chad's day, 1643. The helmet and breast and back are now at Warwick Castle. The breast has a placate with two bullet marks on it.

The murder or execution of Monaldeschi at Fontainebleau, November, 1657, is another instance of the failure of chain mail to keep out a sword point. He had on a shirt of mail weighing 9 or 10 lbs., and one of the men who killed him found that his sword was blunted by the mail, but it went through all the same, as may be seen to this day.

DISUSE OF ARMOUR.

In October, 1524, there was a proclamation forbidding the wearing of armour and weapons in the King's Palace or Hall of Westminster, except by the Sheriff of Middlesex, the Warden of the Fleet, and their officers.

Sir James Crofte, writing to Cecil from Berwick in July,

1559, says that "at present the rarest thing at a muster is a naked pike or an harquebusse without a morion."

At the capture of the Zutphen forts, October, 1586, Edward Stanley, who was the first man on the breach, is mentioned by Leicester as "being all in yellow saving his curatts."

At the assault on the fort near Wesel, when Vere attempted the assault by escalading, it is mentioned that there were several broken heads, for the day being sultry the soldiers had left their morions behind. However, this was remedied the next day.

The Fighting Veres, p. 168.

In the orders for the musters, March, 1590, it appears that the soldiers had refused "to wear and carry their armour from the towns where they dwelt, so that the constables and other the owners thereof have been driven sometimes to carry the same in carts and sometimes in sacks upon horses (a matter both unseemly for soldiers and also very hurtful unto the armour by bruising and breaking thereof, whereby many times it becometh un-serviceable)." It was therefore ordered that every soldier "at all musters and trainings shall have over and beside 8*d.* a day for his wages, a penny a mile for the wearing and carriage of his armour and weapon and other furniture, so that it exceed not 6 miles, *etc.*"

Hatfield MSS.

In September, 1596, on some troops being sent from Lincolnshire into Ireland, it is stated that "because in every employment we find such loss of armour as is very chargeable to the countries, bonds shall be taken to the double value of the armour delivered, of the captain or lieutenant receiving the soldiers, to see restitution made of the armour, or to make good proof by witnesses, how the same is wasted or lost in Her Majesty's service."

Sir John Smith in the proeme to his *Discourses*:—

"But that which is more strange, these our such new fantasied men of warre doe despise and scorne our auncient arming of our selves both on horseback and on foote sayinge that wee armed ourselves in times past with too much armour, or peeces of yron as they terme it. And therefore their footmen piquers they doo allowe for verie

well armed, when they weare their burganets their collars their cuirasses, and their backs, without either pouldrons, vambraces, gauntlets or tasses. Their Horsemen also and themselves serving on horseback with Launces or any other weapon, they thinke verie well armed with some kind of head-peece, a collar, a deformed high and long-bellied breast, and a backe of the prooffe, but as for pouldrons, vambraces, gauntlets, tasses, cuisses and greves they hold all for superfluous. The imitating of which their unsoldierlike and fond arminge, cost that noble and worthie gentleman Sir Philip Sidney his life, by not wearing his cuisses, who in the opinion of divers gentlemen that sawe him hurt with a musquet shot, if he had that day worn his cuisses the bullet had not broken his thigh bone, by reason that the cheif force of the bullet (before the blowe) was in a manner past."

Sir Richard Hawkins, *Observation of, in his voiage into the South Sea*, 1593 :—

"I had great preparation of armours as well of prooffe as of light corsletts yet not a man would use them but esteemed a pott of wine a better defence than an armour of prooffe.

"I have known many bred in cold countries in a moment complain of the weight of their armes that they smother them and then cast them off chusing rather to be shott through with a bullet or lanced through with a pike or thrust through with a sword, then to endure a little travaile and suffering."

Sir John Smythe's *Instructions, Observations and Orders Militarie*, 1595 :—

"In the Camp and Armie at Tilbury 1588. . . . I did see and observe so great disorder and deformitie in their apparrell to arme withall, as I saw but very few of that army that had any convenience of apparel, and chieffie of doublets to arme upon, whereof it came to passe that the most of them did weare their armors verie uncomelie uneasilie."

Edw. Davies in 1619 mentions the shot, *i.e.* the men with fire arms, being loaded with "a heaieve shirt of male and a burganet, by that time they have marched in the heat of summer or deepe of the winter ten or twelve English miles they are more apt to rest than readie to fight."

Markham in his *Souldiers' Accidence*, 1625 :—

“As for the pouldron or the vant-brace they may be spared because they are but cumbersome.”

Edmund Ludlow at the battle of Edgehill, 1642, getting through a gap in a hedge and being dismounted in the attempt :—“I could not without great difficulty recover on horseback again being loaded with cuirassiers arms as the rest of the guard also were.

“The night after no man nor horse got any meat that night, and I had touched none since Saturday before, neither could I find my servant who had my cloak, so that having nothing to keep me warm but a suit of iron, I was obliged to walk about all night, which proved very cold by reason of a sharp frost.”

This is one of the very rare instances of cold rather than heat being an accompaniment of armour wearing.

Cruso, *Militarie Instructions for the Cavallrie*, 1632, says :—

“Captain Bingham in his Low Countrie exercise appointeth him (the Harquebusier) a cuirass pistoll prooffe, which condemneeth the late practice of our trained Harquebusiers to be erroneus which have wholly left off their arms and think themselves safe enough in a calf's skin coat.”

In April, 1639, Edmund Verney writes :—

“I believe there is never a long gauntlett sent . . . Let Hill make one with all speed he can possibly, for it will kill a man to serve in a whole cuirass. I am resolved to have nothing but back, breast and gauntlet. If I had a pott for the head that were of pistol proof it may be I should use it if it were light, but my whole helmett will be of no use to me at all.”

The “pott” was sent, but as it did not fit he kept it to boil his porridge in.

Turner's *Pallas Armata*, 1670 ; speaking of the captains and lieutenants who in former times marched with a headpiece, a corslet and a gorget, the captain having a plume of feathers in his helmet, the lieutenant not, “now the Feathers you may peradventure yet find but the headpiece for most part is laid aside.”

While armour for many reasons was going out of use earlier in some countries than in others (as for instance

in England, while in Spain it was still used), there was another and striking circumstance connected with its disuse. As Baron de Cosson has pointed out, the art of making the crown of the helmet in one piece, or at all events to look like one piece, seems to have been lost. The potts and cavalry helmets of the seventeenth century generally have the two pieces of which the crown is composed lapped one over the other and riveted. This will be seen in most late headpieces. Then the taces, which were formerly of several lames or strips of metal allowing plenty of play for the movements of the legs, later on begin to be of one piece each. Sometimes a pretence is made of there being several lames by embossing lines to give this appearance, and by a plentiful use of "*clous perdus*" or false rivets. That such was the case not only in common armour but also in better stuff, may be seen in the boy's suit of Charles I. at the Tower in which both these features appear. It is of French make, probably by Petit of Blois, from whose workshop came a very similar suit in the Musée d'Artillerie. Then again the foot defences, which no doubt were getting more than ever out of use, but still were worn in the tilt yard, were constructed on a weak principle. The old solleret had a series of arches protecting the instep and overlapping downwards, next came an arch across the tread of the foot, and then the toe arches overlapping upwards. In the suit given to Prince Henry by the Prince de Joinville all the arches overlap downwards. Many other points of workmanship besides the want of artistic elegance show how much armour was going down. If we compare a suit such as we see in the Beauchamp effigy in Warwick, made in 1451, with the engraved suit given to Louis XIV. in 1688 (see Plate IV), the contrast is very strong, although the latter is the work of a Brescian armourer, Garbagnaus, and bears on it proof marks which have been disguised by being made the centres of floral ornament, as shown by M. Buttin.

Sir John Smith also complained of the inferior armour imported. Harl. 135, f. 96.

"Therunto I answer that true it is that the long peace that we have had till within these 15 or 16 yeares past

DESCRIPTION OF PLATE IV.

This plate shows how much armour of later times fell away from earlier examples. That of Erzherzog Sigismund of Tyrol, about 1470, was the work of a Nuremberg armourer, and the elegance and conformity to the human figure will be at once noticed. The long toe pieces are of course exaggerations like the civil costume of the same period, but the whole is graceful in design and adapted for free movement of the body and limbs. The armour of Louis XIV., made in 1688, though richly engraved and, as its proof marks show, of excellent material, cannot be considered as anything but clumsy and ugly. Although the work of an Italian artist, Garbagnaus of Brescia, and a present from the Venetian government to the Roi Soleil, it has more the appearance of an arrangement of stove pipes than of a panoply for a king.



ARMOUR OF ARCHDUKE SIGISMUND OF TYROL, 1470. AND OF LOUIS XIV.
OF FRANCE, 1688.

did bring a great decaye in armors and weapons throughout the Realme, but that armors and weapons of late yeares boughte and provided in all the shires of England by the Musterm^{rs} orders were reduced and brought to so great pfection and goodness as those gentlemen do write, the same is by them greatly mistaken. For that verie fewe or none of the corslets of all the shires throughout England are of Ausgburge or Newreburg which are the best stuffe and best formed of all other ordinary sale armour made in Germanie, but they are all made at Cullen, Wesill or other townes in base Dutchland of the most common sale and baggage stuffe that ever was put in armo^r, and manie of them of S^r Thomas Croslands old provision from Cullen w^h of all others is best cheape and worst. Most of all w^h sorts of armour have their Burgonets so shallowe for armed men to weare their collers so shallowe in depthe and straight in the necke, their cayrasses backs in the lower parts of them verie broad and wide out of all proportion, and thereof all the poulthrons of those armours are very slante, doe lacke compasse and proportion, and the vambraces too shorte and altogether without any gauntlets, their tassess also and all the rest of the peece of their armour ill leatherned, nayled and of ill forme. Of all which imperfections it cometh to passe that the soldiers do find themselves so uneasily and unfitly armed, how fitt soever their arming doublets be that they cannot use and handle their weapons in the fiede with such dexteritie as soldiors ought to doe, and as for piques they are of divers lengthes and the most of yerne not above 14 or 15 feete longe, and then with all in wood so great and heavie as no soldiers can use them as they ought to doe, and as for their calivers they are of divers heightes and lengthes and fewe of them ranforced backwards as they ought to bee and so likewise their mosquets that they so muche talke of are of divers heightes in their bores and many of both those sorts of weapons of fire have great imperfections in their skrues pans serpentines and sears as also that the cannons of guns are not straight forged nor truely boared in such sorte as in 100 mosquets and calivers a man shall scarce find five without those faults and imperfections and divers other which I omit."

In most collections of armour one sees some suits for boys, not fancy ones, but suits on a smaller scale than for men. It was but natural in the old days when princes and others appeared in the battle-field at an age when they would now be at school, that some provision should be made for their safety, and moreover that they should early in life learn to wear armour in a soldier-like way. Accordingly we find in Madrid some fifteen boys' suits, *armaduras de niños*, two of which were for the prince, later Philip III., and a tourney suit for Don Balthasar Carlos.

At Vienna is a suit attributed to Philip I. of Castile, but though it is fit for a boy of his age when it was made, namely, six years, Boheim doubts the accuracy of the attribution. There is another which was begun but never finished for the youthful Emperor Charles V.

In Paris are many boys' suits but with no special attributions.

In the Tower are two boys' suits which are of undoubted attribution. One, a richly ornamented suit given to Prince Henry, son of James I., by the Prince de Joinville. It is of rich ornamentation, but ugly and not very practical in construction. This prince had five suits given him, and we are told of one of them that it cost the donor, Sir Henry Lee, K.G., £200. The prince was then fifteen years old, and Mr. Chamberlaine, who mentions the gift in a letter, remarks that the suit "within a year or two will serve his turn neither in jest nor earnest." Another suit of this prince, but of later date, is at Windsor Castle, and was made at Greenwich, but not paid for at the time of Prince Henry's death.

At the Tower is also an interesting suit given to Charles I. when prince and about twelve years old. It was probably made by Petit of Blois, and shows us the armour of the cuirassier of that period. By taking off the leg and arm defences and substituting a pikeman's pott and short taces the suit serves for foot armour. The target of the suit is at Windsor.

Many of us know the charming portrait of Charles II. by Vandyke in which the little boy is represented in armour and holding a wheel-lock pistol.

Dr. Wootton, writing in Oct., 1555, to the Council from



ENGRAVED SUIT OF ARMOUR IN THE TOWER, MADE BY CONRAD
SEUSENHOFER, 1514.

Given to Henry VIII. by the Emperor Maximilian.

La Ferté, Milan, says "to-day the king (Henry II.) leaves for the frontier accompanied by the Dauphin, who shall this journey begin to wear armour, at least mail and some other light gear meet for him to wear." The Dauphin was then nearly fifteen years old, for when he died as Francis II. in 1560 he was not quite eighteen.

WERE THE MEN OF ARMOUR DAYS SMALLER THAN
THOSE OF TO-DAY?

There is probably no commoner remark made by those who visit the Tower or indeed any other collection of armour than, Is it not the case that men of the armour period were much smaller than those of to-day? and then some story will be repeated about it being so difficult to find armour for some modern display such as the Eglington Tournament of 1839. The fact really is that except in one respect the man of the fifteenth and sixteenth centuries was not necessarily smaller than the ordinary man of the nineteenth. That particular was in the girth of the leg, and whether the mighty ones of times past did less to develop the muscles of the lower limbs, or whether the nineteenth century leg is abnormally large, yet it is certain that few modern men could get into the leg armour to be found in collections. The exterior girth of Henry VIII's leg armour in the four suits now in the Tower which may certainly be assigned to him are as follows:—the engraved suit, No. V, which we know was made to measure, Pl. V, arrived in England in 1514, when the king was 23 years of age, and the girth of the calf of that suit is $16\frac{1}{2}$ inches. In this as in the other cases there must be allowance made for some hose or underwear of sorts, though there does not seem to have been any lining attached to the leg armour, at least there is no visible means of attaching it. The suit, No. 28, called "that rough from the hammer," is said to have been made for him at the age of 18, but as anyone can see that the suit has been milled or glazed, as it is called, and is quite smooth, so the other statement which refers to his age may be equally incorrect. Anyhow the girth of the leg is 18 inches. The other two suits, Nos. 6 and 7, of the king evidently belong to later years, as we may see by the

large size of the body in each case, and it would take a pretty stout man to fill the cuirasses of these suits now or at any time. The calf girth is in No. 6, 20 inches, and in No. 7, $19\frac{1}{2}$ inches. These measurements would do for the average man now. But let us consider also three other suits, the attribution of which is without doubt. We will first take No. 9, which on the evidence of Jacob Topf's MS. was made for William, Earl of Worcester, who was said to be the most accomplished tilter of his day. He died in 1589. That he was a big man there is no doubt from the size of his cuirass, and also the weight of it, for the breastplate weighs 20 lbs. and the back 20 lbs. 3 ozs. Now the maximum size of calf of that suit is only 16 inches, and besides that the armour bears evidence of having been *let out* by the addition of pieces of metal. And if the calf is small, so is the ankle, which with only $10\frac{1}{4}$ inches of girth would fit few men who take any exercise at all.

The external waist girth of No. V is 35 inches, that of No. 20, 38 inches, and No. 7, 54 inches. No. 6 has had the culet and tails enlarged by extra pieces of metal.

Again, take the suit of Robert Dudley, Earl of Leicester, made between 1566 and 1588, as the engraved collar of the order of St. Michael and the death date of Elizabeth's favourite prove. The maximum girth of the calf is but $15\frac{1}{2}$ inches.

The gilt suit reported to have been given to Charles I. before he was king and consequently while he was 25 or less, has a girth of $14\frac{1}{2}$ inches. The boy's suit is $11\frac{3}{4}$.

Leaving the legs now let us turn to the question of height. It is well known that unless well set up, armour figures are apt to telescope down, and the armour said to have been carried at General Monk's funeral in 1670, and now in the Islip chapel in Westminster Abbey, is a marked instance of how much a figure can collapse. Of course for armour to fit any one it is clear that the bends of the metal must correspond with the points of flexure of the individual. Now to take the brassards or arm defences, it will be remembered that the upper part of the brassard was often attached by points or laces to the sleeve of the garment immediately next to the metal;¹ by means of

¹ p. 120.

these points then we may adjust the arm bend of the armour to that of the body, but, in the case of the lower part of the brassard, if it is too short it will not reach from the elbow to the wrist, and would leave a gap at the top of the gauntlet. So also with the leg armour, the greave or portion covering the lower leg must be of the proper length. In the early part of the sixteenth century we find the back portion of the greave generally reaching to the heel instead of, as in earlier times, terminating at the ankle. In the later part of the sixteenth century we find in many suits, and especially in those made by Jacob Topf, a series of small plates, generally four in front and five behind, connecting the greave with the heel piece and giving much ease and freedom to the ankle. But these small plates are articulated together, and so the proper length from knee to heel is still necessary.

With regard to the body armour, the breast or back plates, they might be raised or lowered an inch or so without passing the lower margin of the gorget, and the only requisite was that the waist should be large enough and broad enough to encompass the wearer. The suits of the second half of the sixteenth century generally show an arrangement by which the upper portion, say the upper lames, could be detached from the lower, and so worn over the bulky trunks while the lower lames fitted to the thigh. In the long taces which did not so take to pieces we must remember that they were made to be worn when mounted and the leg bent, consequently we cannot expect them to look when set up on a standing figure any better than the overalls of a mounted man look when he is on foot.

The above remarks will, it is hoped, explain that except in the matter of the girth of the leg we must not conclude that we are much finer men than those of old days. Further, except for the tilt yard, and in some other cases, leg armour below the knee was not much used in England.

Armour was, besides, often being mended, or let out owing to the change of bulk of the wearer. In the Tower collection the Worcester suit has been thus altered.

Change of fashion also often affected armour, and it was

for such work no doubt that the payment of £57 17s. 4d. was made in 1530 to the master of the horse for sending the king's harness from Boulogne to Milan. At Henry's death in 1547 the inventory notes "one harness for the king's Maiestie all graven and parcele guilte both for the felde and Tilte complete which was commanded to be translated at the king's going over to Bulloigne which lieth in peces parte translated and parte untranslated by a contrarie commandment by the king's Maiestie." Might not this refer to the same suit as that of 1530 ?