National College of Art and Design

Department of Industrial Design

Military Design and the Feudal Order

by

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LIST OF ILLUSTRATIONS

LIST OF PLATES

CONTENTS.

INTRODUCTION

Marxist theory dictates that productive forces select structures according to their capacity to promote development, that social relations change because otherwise the forces would not progress, and that forces do progress because the new relations facilitate productive progress.

The eighth and ninth century reorganisation of societies production relations from Roman style organisations into the structures of Feudalism was a solution to the economic crises of the dark ages. In its origin it provided for the recruitment of vitally needed cavalry troops in a society which lacked liquid money to pay its troops in cash by organising land wealth directly for the recruitment of knights.(Brooke 1987 p107)

In this pre-capitalist society, the structures of kinship, religion, law and state entered into the structure of the mode of production and became part of the economic base.(Cohen 1978 p248)

As a result of the emphasis this social structure placed on heavy cavalry, the social status of the knight became accentuated. In essence, all of the feudal superstructure is centred around him. Two crucial things formed the basis for his military and hence his social pre-eminence: his horse and his armour. These were the means by which feudal military power enabled western civilisation to progress through the centuries of crises which followed the dark ages.

Naturally, as leaders of society, their profession and its material attributes, horses, weapons, armour, became ennobled as elements of higher culture. The military and courtly code of chivalry (derived from the french "cheval" or "horse") was the sublimating factor which allowed them to justify to themselves their claim to be the secular guardians of civilisation. Undoubtedly, the medieval heavy horseman safeguarded the process of the development of the productive forces for over four centuries. Marx frequently allows that a dominant class

promotes not only its own interests but in doing so, the interests of humanity at large - until its rule becomes outmoded and it becomes reactionary.(Cohen 1978 p149)

When the crises of the dark ages had passed, the original need for feudal knighthood also passed. In the years following the end of the crusades, Knighthood and feudalism it began to inhibit the further development of productive forces by becoming obstacles to the development of capitalism. But as so often with social customs, the duties and privileges of knighthood survived long after its original purpose had been wholly superseded.

Feudalism was a very artificial solution to the chaos following the final break up of the Roman Empire. As a social system it was too closely connected to its own militarism. The military system itself had become too dependent on a single tactic - cavalry shock combat. This made the whole feudal superstructure vulnerable to the technological development of destructive forces.

Marx's Historical Materialism implies that the feudal relations which existed on the battlefield suited the technology of the age. However, by the fourteenth century, weapons technology caused these relations to be superseded. Scientific knowledge which is applicable to production use is a productive force, and productive development eventuates incompatibility between forces and relations. The tension is always resolved in favour of the forces by the transformation of the relations. In Marx's *Wage Labour and Capital* (1849), the analogy is proposed between the determination of the productive relations by productive forces, and the determination of military relations by destructive forces. When scientific knowledge as a productive or military force results in the invention of a new weapon of warfare (Marx chooses firearms as an example) the whole internal organisation of an army changes, the relationships within which individuals constitute and act as an army are transformed. Thus the social relations of production change with the development of the material means of production.(Cohen 1978 p146)

While the firearm was the biggest single factor in the revolution in

weapons technology which did away with the dominance of warfare by the aristocratic horseman and in so doing accelerated the demise of the feudal order, it was preceded by other crucial weapons inventions which effected battlefield relations similarly. The longbow, the halberd and the pike contributed to the removal of the horseman from his central role in the battlefield drama by giving real tactical power to the infantryman. In practical terms, the new weapons were able to nullify cavalry charges by killing charging horses, and penetrating the armours of the riders, i.e. by negating the traditional advantages of the feudal warrior.

In response to each new weapon design, there were improvements in the deflective and shock absorbing qualities of the knight's body armour, until the firearm made further such improvements impractical.

The reduction of the nobleman's dominance of the battlefield was reflected in the alteration of his standing in society. In the feudal period, the war-tactics and the social class who advocated them were interdependent. The outmoding of the tactics by the weapons revolutions contributed to the transformation of that classes relations to one another and to society as a whole.

This thesis can be divided into two main parts, the first three chapters deal with the condition of the nobility and the nature of their feudal relationship with the rest of medieval society, and illustrate the importance of cavalry tactics, armour design and traditional medieval warfare to the feudal relations. Chapters four and five demonstrate the outmoding of feudal social order and feudal military power through the introduction of capitalism and revolutionary infantry weapon designs culminating in the introduction of firearms.

Specifically, chapter one sets out the economic and social roots of the feudal order, and explains the importance of armour to the development and continuation of the ruling chaste.

Chapter two details how the development of armour design reflected the stages of development of feudal societies productive forces and processes and how it also reflected the stage of development of the destructive forces.

Chapter three details the social and military relations within feudal society and feudal warfare with particular reference to the importance assigned to the role of the ruling class through their code of chivalry.

Chapter four details how feudal social structures were undermined due to the outmoding of its productive and technological forces, and the rise of independent non-feudal entities in Europe through their successful use of infantry tactics and weapon designs against the forces of traditional feudal militarism.

Chapter five deals with the demise of the feudal nobilities dominance of the battlefield and the rise of capital structures in Europe as embodied in the development of the handgun, the transformation of European social organisation at production level, and the birth of the middle class.

1
THE RISE OF THE EUROPEAN HORSE WARRIOR.

European armies had always been familiar with the light horse warrior. During the fourth and fifth centuries, invaders from the east used mobile cavalries of light archers to attack western civilisation.In the fifth century, the traditional infantry armies of the west ,the Roman legions, were decisively destroyed in the battle of Adrianople, in 376. Here the Goths used their light cavalry to cut up the legions with their swords.(Newark 1988 p20)

With the end of the Empire as a military force and as an institution, there began a slow disintegration of the Roman social system. It was not immediately swept away by the rampaging eastern barbarians, for in the aftermath of their conquests these Germans arrived at the realisation that there was nothing left of the former empire's wealth for them to consume. Faced with the stark choice of having either to return to the hostile environs of their homelands, or make permanent their presence in western Europe, they decided to adopt the Roman system as a new form of community which enabled them to settle in the newly-won lands.(Burns 1991 p70). They discarded their generations-old tribal lifestyle of constant migration and pillage for this form of community which naturally corresponded to the stage of development of productive forces and social relations already in existence in the former Roman lands.(Cohen 1978 p143). In the transition, the change in their productive forces naturally brought about changes in the Barbarians relations of production.This resulted in the stratification of previously simple tribal hierarchies, and laid the tentative foundations for a new feudal social superstructure, influenced heavily by Roman constitutional and legal structures.(Burns 1991 p93, Russell 1979 p26, Brooke 1987 p186)

Thus the Empire lasted on in some form for another two centuries. However,in the course of time, under constant pressure from continuing

migrations from Goths, Magyars and Huns from the east, Vikings from the north, and Vandals and Muslims from the south, the last remnants of the Roman structures crumbled.(Crowie 1969 p41)

By the eighth and ninth centuries trade between east and west had become a fraction of what it had been during the time of the Empire. In their ruined condition, the Barbarian kingdoms could no longer afford to pay for large amounts of imported goods from the east nor could they supply manufactured goods. What trade existed was in furs, timber and slaves.(Crowie 1969 p43)

Due to the havoc wrought through these successive invasions there was wide spread insecurity of travel and a general breakdown in communications. This together with a decline in governmental authority made trading dangerous and expensive. The absence of political stability crippled long-distance commerce so that what markets there were in the west were for local trade. The old Roman style economic structure was now wholly inadequate for the new situation. It was clearly vulnerable to the chaotic influences of the sustained migratory pillaging and the resulting failure at production level was undermining the social structure which depended upon it, further development of the modes of production now demanded a change in social structure.Due to these circumstances European society became increasingly based on the rural self-sufficiency which developed into feudalism.(Crowie 1969 p43)

Feudalism was adopted as the social structure which enabled western Europeans to check and reverse the advances of invaders and return the continent to some form of governmental stability.(Crowie 1969 p43). The military nature of feudalism is clear, at its inception its function was to provide and maintain a permanent form of heavy cavalry which could be called out at short notice and be provided for and sustained during war and peace times.(Crowie 1969 p43). In such a new structure a certain set of production relations or social form became appropriate as a framework for it. Because of the military nature of the new structure it became inevitable that the new hierarchial pyramid would have at its apex a land based horse warrior nobility.

The initiators of this system were the Frankish rulers of the

Carolingian dynasty. Land wealth was given to nobles of military value to the king. Dukes, margraves, and counts were endowed with this land on the condition that they would swear faithfully to serve their overlord and aid him with arms when required. The estates granted to this nascent nobility became heritable and the service they performed in return became formalised into the duty of knight service.This duty operated as follows; each estate was valued at a certain number of "knights fees" which represented the service due from the chief tenant- a duke or count - who held the land directly from the king.For each knights fee this tenant had to bring to the royal army when summoned a fully armoured knight and maintain him and his horse in battle readiness for a certain period, about 40 days.(Oman 1924 p63).This was the basis on which the noble held his land from the king and on which the king had an effective army at his disposal.(Crowie 1969 p44)

The level of productivity and the absence of a reliable monetary system during the feudal period made such a manorial scheme appropriate for provisioning the population. The relations and class it empowered promoted the development of productive forces and provided the essential political and social stability necessary to ensure continued development.(Cohen 1978 p334) Having this horse warrior class in power was best for the development of the forces even though the relation also posed obstacles to it.(Cohen 1978 p171) For though clearly exploitative, in theory the feudal lord fought for the sake of his manorial dependents, so providing stability and security, and in return the serf laboured in a spirit of homage to provision the lords household and maintain him for defensive purposes. Though bound by non-economic ties of tradition and loyalty, it was really economic necessity in a time of crisis which glued them together.(Cohen 1978 p332, p334)

But it was not merely that European lords now had a reliable permanent cavalry force which enabled them to beat the invaders of the early middle ages. For the Europeans had been accustomed to the cavalries of the Magyars and Muslims since the fourth century. What made the new European cavalries the masters of the battle field, was, firstly the introduction of the stirrup in the eighth century which gave the rider a firmer seat and enabled cavalry to be used for shock combat; and secondly the ability of the great Frankish ruler Charlemagne to equip his cavalry with expensive armour and weapons as a matter of

course.(Cross 1991 p64). When pitched battles occurred , Charlemagne's heavily mail-armoured Frankish cavalry had a great advantage over their lightly-armoured and lightly-armed opponents.The arrows of their short bows could not penetrate the mail and only a very heavy blow from their swords could cut it. The tactic of the Franks was the close order charge with their lances levelled, and they relied on their swords in the melee, and this tactic became the noble way of fighting throughout the middle ages.Their superior equipment made them irresistible, so long as they kept their discipline.(Cross 1991 p63)

1 *Charles the Great (Charlemagne) from an eighth century chronicle.*

As the middle ages progressed the armour and equipment of the heavy cavalry soldier, who fought with lance and sword became increasingly heavy and more effective, and correspondingly more expensive. However the expense of armour, war horse and weapons for cavalry meant this style of fighting was restricted to kings and nobles, the lynch pins of the feudal order.(Cross 1991 p63)

Medieval armies did contain infantry- spearmen and archers - but the whole ethos of feudalism was for the heavily armoured cavalry man. By the year 1000 the horseman had already emerged as the significant force in war, and horsemen had become synonymous with high stations

in the feudal social order.The chief attribute of feudal kingship was leadership in battle and consequently success in war was vital for success in rule. In this society war was the aristocracy's primary function.(Cross 1991 p65)

2
THE DEVELOPMENT OF ARMOUR, 1100 - 1550.

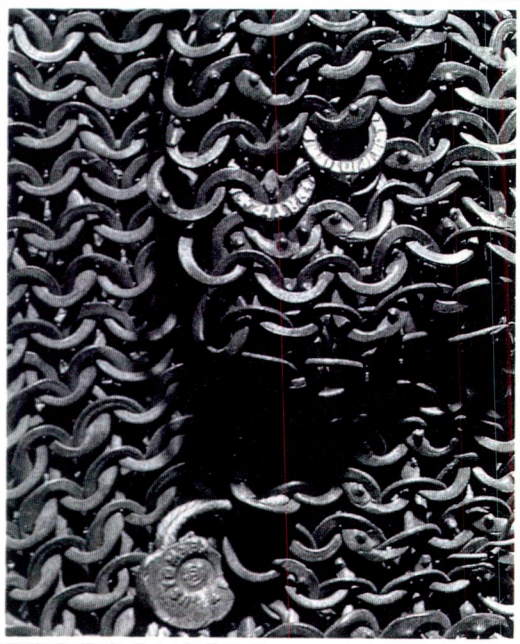
Military design has always placed the highest demands on society's productive forces and has always been a significant spur for technological development. As such an indicator,and apart from reflecting the character of feudal war, military design reflected the level of feudal technological sophistication and the stage of advancement of the production forces in the middle ages.

The development and perfection of armour is analogous to the history of feudal aristocracy. For, from its inception, this aristocracy was uniquely linked to its material attributes. Its rise as a horse warrior nobility was not the result of any significant weapons revolution, but more as a result of an armour revolution. Their claim to supremacy on the battlefield became, in the later middle ages a struggle against the new social, economic and productive forces embodied by the weapon designs of the common order foot soldier.

Armour, as a commodity produced for the class in power, naturally represented the height of feudal productive complexity and the most technologically advanced equipment available for the age.

2 *Battle of Hastings, as depicted by the Bayeux Tapestry. Both Normans and Britons wear similar head gear and mail armour.*

The heavy horseman at the beginning of this period had armour consisting of a coat of interlocking ringlets of mail called a hauberk, he wore a conical steel cap with a nasal guard, leaving his face and neck uncovered, and on his arm he carried an enormous kite shaped shield.His weapons were the sword and lance , and occasionally he wore plate guards for his lower legs.(Oman 1924 p3, Cross 1991 p63)



3 (right)*A mail-maker at work. c 1435.*
4 (left) *Chainmail c. 1400 - one ring bears the name of the maker, Bertolt Parte.*

The weapons against which he girded himself were primarily the arrows of the shortbow and sword cuts. In a battle the chainmail was sufficient to stop penetration of the arrows and was also proof against all but the heaviest blows from a sword or axe. This protective metal fabric, based on a system known since antiquity and probably invented by the ancient Celts before the fifth century B.C., involved the punching out of closed rings from a plate of metal with a double punch or by the punching of a single hole and trimming the edges. Another method used was the cutting of wires from a thin sheet of iron and then filing them and hammering them into shape. It is possible that a forged rod was drawn through successively smaller and smaller holes to make iron wire (though the process of wire drawing may not have been

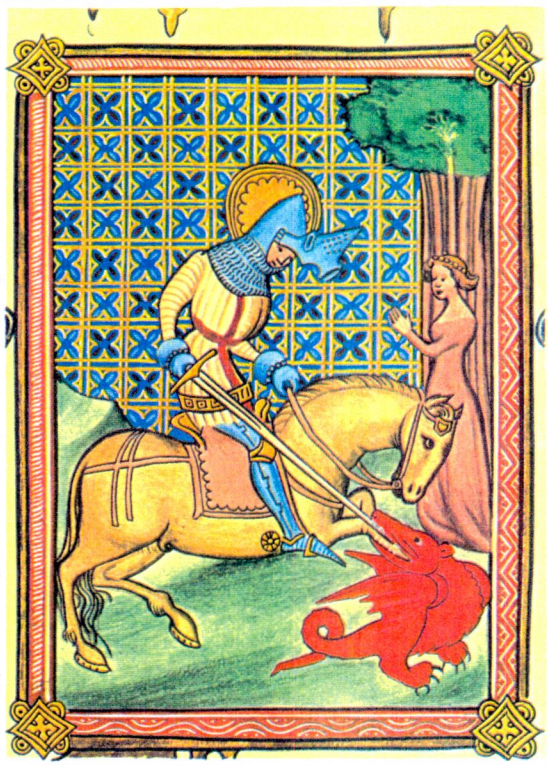
known to medieval mail makers). The wire was then coiled around a bar and cut up to produce a number of rings.(Pfaffenbichler 1992 p57, Tarassuk/Blair 1982 p341)

In the ring-making process the metal was worked cold, but for connection the rings had to be annealed to stop cracking from work hardening.The ends of the rings were flattened, overlapped and punched and riveted using a pair of riveting pincers. Rivets were of iron while the rings were sometimes of brass. Garments of mail were shaped by adding or leaving out extra rings on each row. Each piece of mailclothing was fashioned specifically for whichever part of the body it was intended to protect.(Pfaffenbichler 1992 p59, Tarassuk/Blair 1982 p3

In the third quarter of the twelfth century, the light cloth over garment called the surcoat grows common in Europe. It is likely that it was borrowed from the Byzantine cavalry whom the westerners encountered on their way to the crusades at the turn of the eleventh century, and who had been wearing it since the ninth century.(Oman 1924 p4, Tarassuk/Blair 1982 p136)

It is also likely that the development of quilted protections for the body during the twelfth century also came from experiences in the crusades, for the Saracens had been wearing them long before the twelfth century.Known as a Gambeson, it was composed of layers of cloth or rags quilted onto a foundation of canvas or leather and then covered with an outer layer of cloth, usually linen. The nobles took to wearing it under their mail shirts as an extra defence and also as a cushion to absorb the impacts of arrows bouncing off their mail. Infantry and the poorer mounted warriors wore them as their only defence.(Oman 1924 p4)

By the middle of the twelfth century an official distinction appears between the old style hauberk called the byrnie, and a new hauberk with lengthened sleeves which also included a hood of mail, sometimes attached to the head gear called a coif. The new variety is called the lorica, and in Henry II's catalogue of arms, he requires of his richer knights that they equip themselves with it, while poorer knights are only expected to have the byrnie and steel cap.(Oman 1924 p5)



5 (right) *12th Century Coif and Hauberk.*
6 (left) *St. George in quilted gambeson from a late 14th Century French manuscript.*

At the end of the twelfth century the serious changes in the character of the knight's equipment began. The head protection is the first to show marked change. The conical steel cap becomes flattened on top and becomes barrel shaped, though it still retains the nasal and leaves the face uncovered. Shortly after this shape appeared a more revolutionary one followed, the nasal expanded to cover the face leaving only the eyes exposed through slits.This was the first headpiece to cover the entire head since classical times. This helm was not universally worn in the thirteenth century; many knights disliked it because of its weight and preferred instead the old mail coif and steel cap.(Oman 1924 p6)

A major development in armour with far reaching effects for chivalry came about as a direct result of the adoption of this closed faced pot helm: these helms began to be adorned with various ornaments and crests. As much for the decoration of the equipment, these additions were important for the identification of the wearer, because since his

face was covered, the knight could no longer be recognised by his friends.For the same reason the cloth of the surcoat, instead of being left plain, was adorned with an embroidered representation of the wearer's coat of arms. This form of heraldry began to be seen in the middle of the twelfth century, but it was not until its end that the knightly class assumed regular armorial bearings.(Oman 1924 p6)

7 *These family seals show the great helm, weapons, chain mail armour and heraldic bearings of a knight of the 13th Century.*

Also by the thirteenth century a further form of protection for the breast was coming into use for tournaments and sometimes for the field; under the gambeson some knights were beginning to wear a thin plate of iron. This first hint of plate armour differs from its later development in that it was worn beneath and not above the rest of the body protection.(Oman 1924 p7)

The construction of chain mail was improved by the start of the thirteenth century so that as manufacturers perfected it, it became possible to use it in smaller sizes. Mail mittens consisting of a thumb and a single covering for the fingers were added to the arms of the mail shirt, and mail leggings and slippers were added for the protection of the

feet. At the end of the century the smiths were able to make individual fingers for the mail glove.(Pfaffenbichler 1992 p59)

8 *The equipment and heraldic surcoat of a knight of the 13th Century. Notice the mail armour snugly covers all of the warrior's body, with plates guarding his lower legs.*

Leg protection became much improved at the same time. Whereas before plate had covered only the outside of the leg, leaving the part touching the saddle unprotected, now the plate became continuous around the whole leg and extended up to the hip joining the skirts of the hauberk.

Plate armouring of the horseman begins in the middle of the thirteenth century. The first pieces covered only the vulnerable joints of the body such as the elbows, knees and shins. Here small plates were fixed onto the mail itself. A little later simple cuirasses of iron appear covering the abdomen.(Oman 1924 p8)

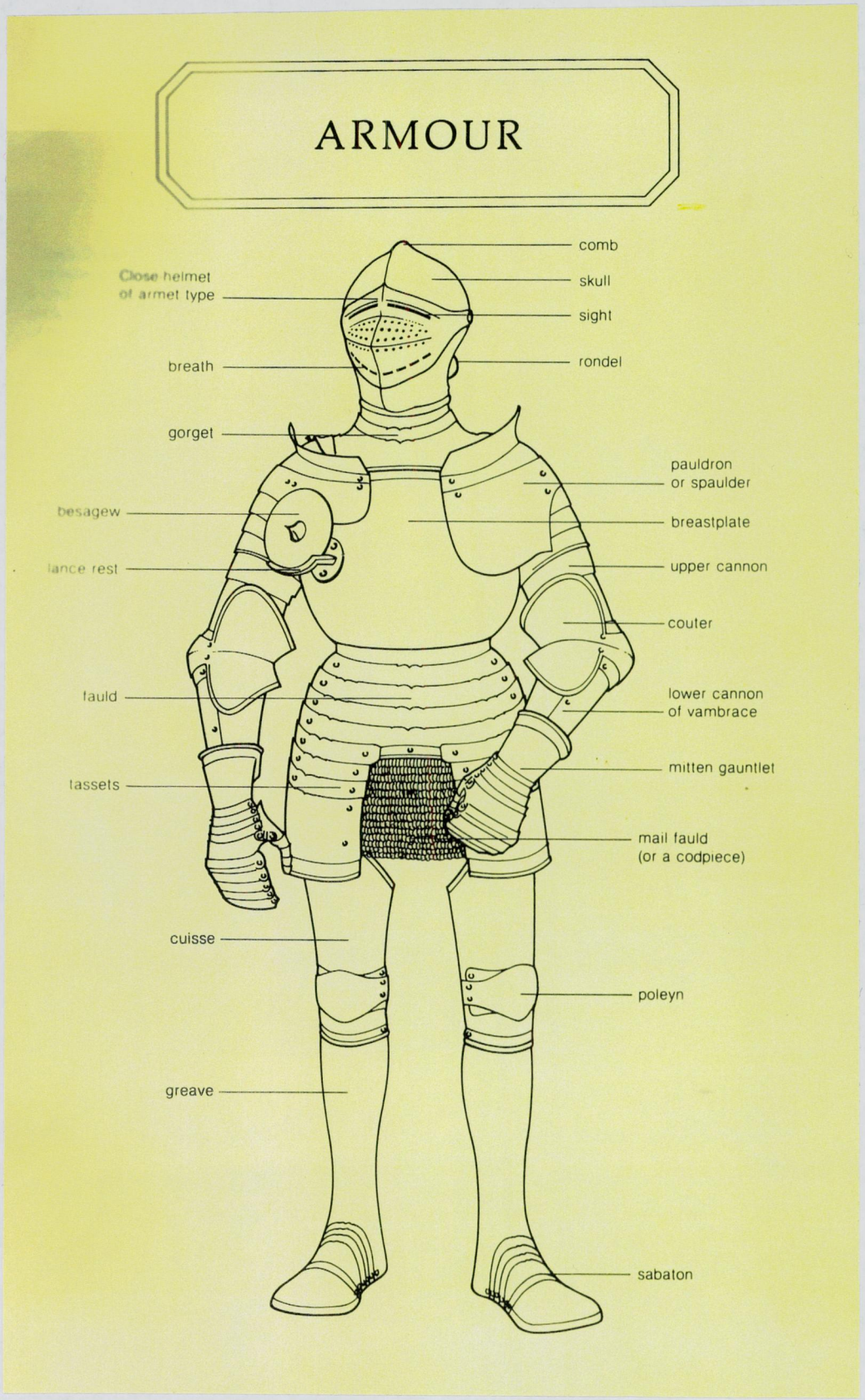
Also since the beginning of the thirteenth century the great shields of the early medieval knights began to get smaller. Shields were becoming

obsolete as the knight was now so well protected by his body armour it had become less necessary to him. By 1300 it could no longer be used to carry a corpse or a wounded man as it had done for centuries. Eventually at the height of plate armour it would disappear altogether from the knight's panoply.(Tarassuk/Blair 1982 p423)

With the effective deployment of companies of archers using the longbow on the battle fields of Europe in the fourteenth century, and in connection with the development of new armour cracking designs in staff weapons such as the halberd, poleaxe, bill, and glaive, the development of all over plate armour was accelerated. (Oman 1924 p377)The arrows of the longbows could pierce traditional mail armour easily and even after armour improvements the arrow heads used on the shafts were developed and designed to penetrate plate armour; the bodkin head could bore through inefficient plate in the manner of modern armour-piercing bullets.(Cross 1991 p86)

By the beginning of the fourteenth century a full legharness had developed with plates covering the feet (Sabatons), the lower leg (greaves), knees(Poleyns) and thighs (Cuises). The primitive over plates of iron covering the abdomen (the Placates) developed into the breastplate and was supplemented by the backplate. These pieces were hinged and strapped together. Gauntlets protected the hands, the lower arm was enveloped by a cylindrical plate tube (Vembrace), the upper arm and shoulders by plates attached to the mail.(Tarassuk/Blair 1982 p24)

The mail skirt of the hauberk was covered by horizontally laminated plates connected to the breastplate and backplate. It gave protection to the abdomen hips and loins.(Tarassuk/Blair 1982 p24). The upper edges of each plate were hammered into turns, these rounded flanges at the neck and armpits were designed to deflect bladed weapons.(Tarassuk/Blair 1982 p24). The rigid and strong breastplate made the development of a rest for the lance possible. This accessory, made removable from the upper right side of the breastplate prevented the lance from being knocked backwards out of the knight's grip on impact.(Tarassuk/Blair 1982 p404)



9 *A 15th Century suit of armour. (From the book* Antique Weapons and Armour).

By 1420, plate armour protected all areas of the body leaving only few weak points to be defended by mail. However, development and refinement of this initial universally worn type of armour continued throughout the century, largely as a result of the work of Italian and German armourers.(Tarassuk/Blair 1982 p24)

By this time also the protection for the head developed further from the one piece great helm of the twelfth and thirteenth centuries to the great Bascinet helm of the fourteenth century. This new helmet consisted of a steel cap covering the upper skull and the back of the head to the base of the neck and also protected the lower face down to the shoulders. A visor of one piece was fastened and hinged at the temples. The visor and cap of this helmet became pointed and conical, the purpose being to deflect a hitting weapon.(Tarassuk/Blair 1982 p76)

Though the Bascinet was in use until the second half of the fifteenth century, by about 1470 it had been largely replaced by the Sallet, a wide-brimmed helm covering the skull and upper face to just above the mouth and was connected to a scoop shaped chinguard called a Bevor. In the Sallet there was a slit for vision.(Oakeshott 1980 p113)

Also in use at this time was the Armet, a close helmet of Italian design, constructed on a different principle than the Bascinet or the Sallet. It used no bevor for chin protection, and The visor was fixed and hinged in the same way as the Bascinet.(Oakeshott 1980 p118)

This helmet was succeeded by the Close Helmet late in the fifteenth century. These Close Helmets, Visored Sallets, and Armets were in many cases almost exactly the same shape, the difference lying in the method of opening and closing the helmets over the head.(Oakeshott 1980 p122)

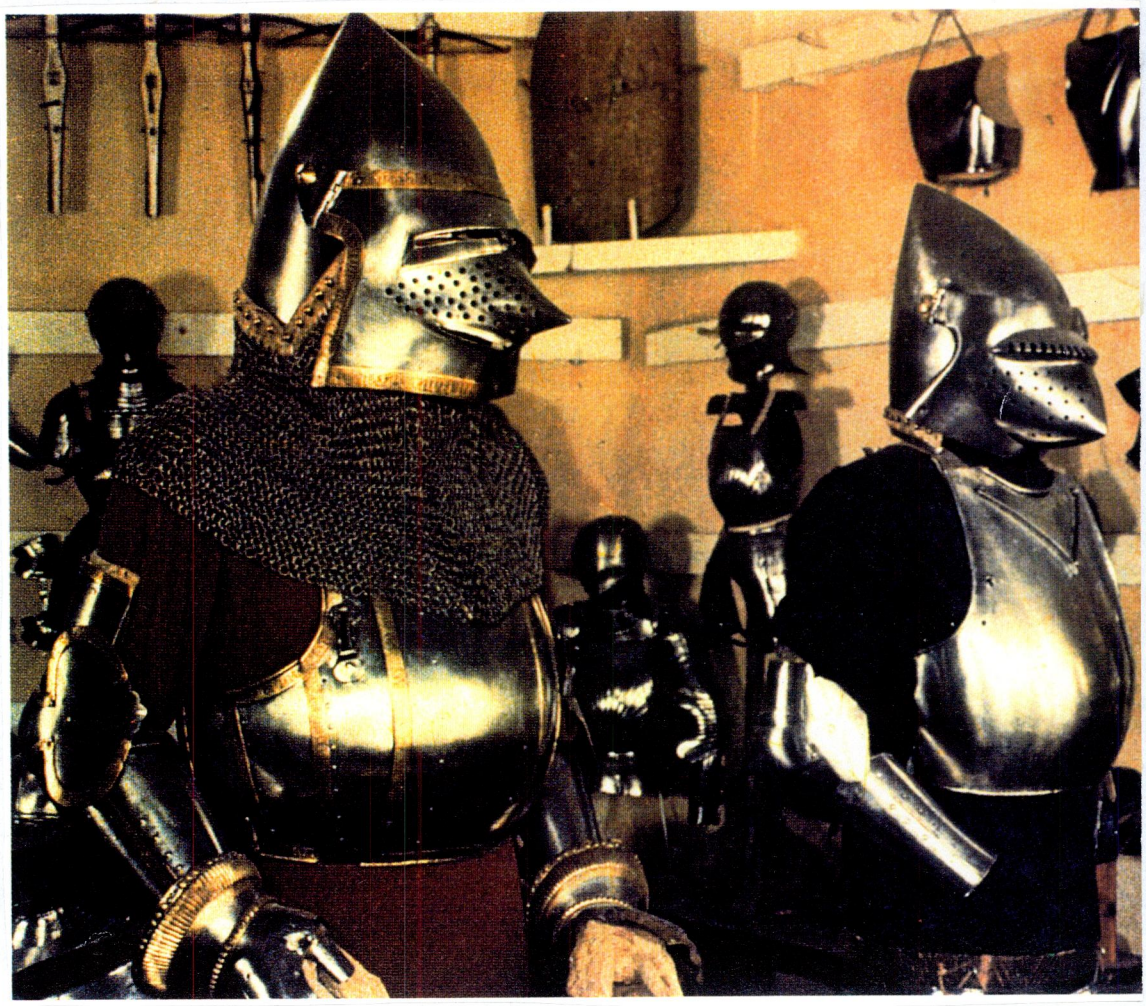
By 1450 the front and back laminated skirts protecting the abdomen of the knight were fastened together to form one circular defence. At the front to the lowest lame were attached Tassets, which were further plate protections for the upper leg. Plate screens were added to the knee guards for protection of the back of the knee joint.(Tarassuk/Blair 1982 p482)

10 (top). 10th Century helmet with nasal. Said to have belonged to King Wenceslaus (d. 935).

11 (above right) Pot helm c. 1350.

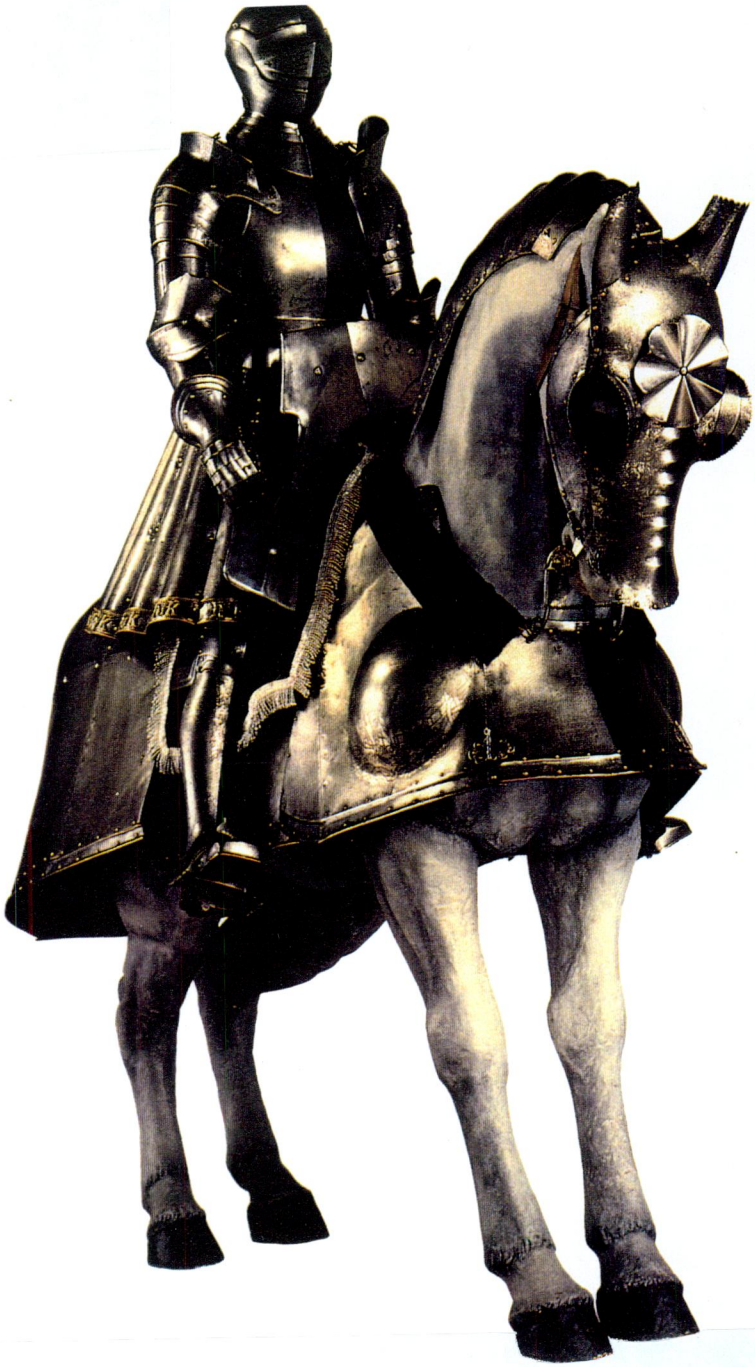
12 (above left) Great helm. c. 1375.

13 (right) The early armour, of *Voght of Milan*, with visored bascinet, 1390.



14 (left) *Armour made by the Corio family, for the govenor of Matsch. 1450. The helmet is a barbut.*
15 (right) *The armour of Frederick I, Elector Palitin. Milan, 1450-5. Notice the appearance of the tassets and besagews.*

The second half of the fifteenth century saw no great structural development in armour, but a great deal was done to improve articulation. To this end, separate Gorgets for neck protection appeared, being worn either under or over the breastplate. The Italian armourers developed a breastplate composed of two pieces; a rounded upper piece cut at the waist, where it was overlapped by the lower breastplate protecting the abdomen and was joined to the laminated skirt. It was matched by similar defences forming the backplate.(Tarassuk/Blair 1982 p102)



20 (right) *Flemish Horse Armour, 1520.*
21 (left) *Flemish foot combat armour. 1515.*

At the same time the laminated skirt was becoming smaller, while the Tassets were being strengthened in their place. Large shoulder guards called Pauldrons were added to the breast plate and by the end of the fifteenth century they were being made of articulated plates, the lower ones being connected to the now cylindrical upperarm Vembraces. Small circular shields (Besagews) were attached to the Pauldrons as armpit defences.(Tarassuk/Blair 1982 p361, p82)

At this point all parts of the body were covered as effectively as possible by plate armour. The manufacture of these defenses was a complicated business which tested the level of feudal technology to its limits and demanded the co-operation of a number of specialised craftsmen.

Firstly the armourer made plates of wrought iron or steel from billets of raw material. These unworked chunks had to be hammered into flat plates. At first this work was done by hand, later the preliminary work was done by a water powered tilt-hammer. This work was done at the iron producing centre , then delivered to the workshop in plate form. The plates were then cut into shapes suitable for the various pieces of armour then hammered into shape over appropriate metal formers or wooden stakes. The metal was worked cold, but needed to be annealed frequently to release the workhardened stresses in the metals micro-structure.(Pfaffenbichler 1992 p62)

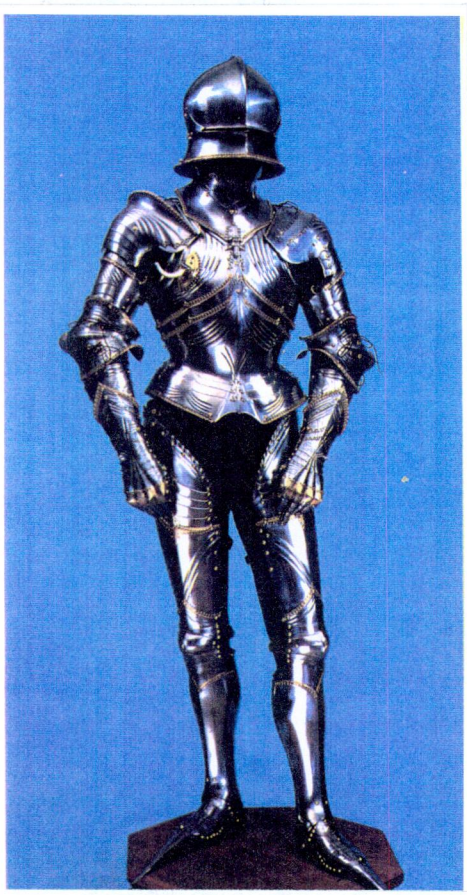
22 *An armour works, c. 1460.*

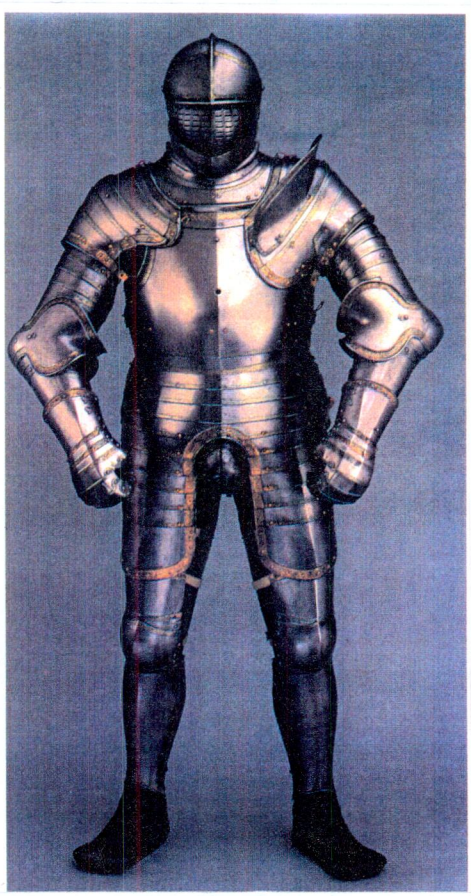
16 (right) The beautifully decorated armour of Christian of Saxony, by Anton Peffenhausen, at the Augsberg works, 1591.

17 (below left) Late Gothic armour of Archduke Seigmund of Tyrol. Augsburg 1480. His helmet is a German visored sallet.

18 (below centre) Henry VIII mid 16th Century garniture, made in Greenwich.

19 (below right) Armour of Emperor Charles V, made at Innsbruck, 1512.





Heat was also required for some details like turned over edges. The edges of pieces which were going to form the outer edge of a defence were stiffened by bending the plate round a wire. The raised metal plate formed a stop to prevent a deflected weapon glancing off the edge into a vital part.(Pfaffenbichler 1992 p62)

In fine armour, great care was taken to see that the metal was thickest over the most vulnerable spots. A breastplate was thicker than a back plate, but the breastplate itself was also thicker in the centre than around the sides. The front of the helmet was generally thicker than at the back. Also, the left side of the armour was often made thicker than the right, as the left side was turned toward the enemy in combat.(Pfaffenbichler 1992 p63)

Much plate armour was case-hardened making the outside diamond hard while leaving the inside as soft as the original iron. Steel armour was harder and stronger than iron and could be quenched to increase hardness and tempered to reduce brittleness. The successful application of these processes depended on the armourers ability to control the temperature of his furnace and measure time accurately. As there was a lack of clocks in the middle-ages, the armourer had to rely on his experience.(Pfaffenbichler 1992 p64)

After the pieces had been forged and shaped with the hammer, they were fitted together and assembled temporarily. The exact fit of all these pieces was of the utmost importance, for if they did not fit snugly over and under each other , the armour would not work flexibly and dangerous gaps would appear as the wearer moved.(Pfaffenbichler 1992 p65)

When they were made to fit properly, the pieces went to the millman for smoothing and polishing of the outer surface on water powered grindstones.(Pfaffenbichler 1992 p65). The pieces then went back to the master armourer who assembled them in order by means of rivets. Each lame of armour was fastened to a leather strap running along the edge of the main armour plate on the inside. Then hinges and buckles were applied. Complete armour was fitted with padded lining inside the helmet, the breastplate, the tassets and the upper leg guards.

The linings extended beyond the edges of the plates to prevent them from scratching. Finally the armour went to the gilders and etchers for decoration.(Pfaffenbichler 1992 p66)

23 *This polisher uses a water dirven polishing mill. From a 16th Century illustration.*

It is easy to think that all this steel was a ridiculous and unsustainable burden on the knight. The celebrated image of the metal encased knight being winched into the saddle of his charger with a crane comes to mind. But even at its height, plate armour was not as heavy as popularly imagined. A full suit of field armour weighed between forty-five and fifty-five pounds, less than a modern infantry pack and better distributed over the body.(Cross 1991 p90)

Nor does the image of the squeaking,scraping, clattering metal knight, lurching noisily round the battlefield ring true. As a matter of course, the pieces of plate which involved friction were covered with material so as to eliminate noise. Then as much as now, there could have been nothing more annoying than constant squeaks and rattles during long journeys.

But, undeniably the metal armoured knight lost mobility and speed because of his elaborate personal defences, and lighter armoured troops such as the soldiers of the Swiss Cantons and the light foot soldiers of the mercenary armies employed by both sides during the Hundred Years

War took deadly advantage of this hindrance. In the face of crushing defeats at the hands of these troops in the fourteenth, fifteenth and sixteenth centuries, one must wonder why the medieval knight persisted in armouring himself so heavily instead of opting for mobility. Perhaps this was because of the general preference given to the defensive over the offensive in late medieval warfare, whether in sieges or in personal defence. But more likely the explanation lies with armour's symbolism for the knight, and its importance to his perception of Chivalry.

3
ARMOUR AND CHIVALRY

Chivalry sprang from two things - The medieval precepts of social order, which gave control over all feudal productive organisation to a closed, divinely ordained ruling class, and the medieval military codes governing rules of combat.

As well as reinforcing the strict class differences in feudal society by promoting the condition of the governing class and portraying them as the secular paragons of cultural and intellectual activity, chivalry , through its formalising of traditional calvary tactics, transformed military methods from mere instruments of warfare into bulwarks of the social order. In feudal society success in war was synonymous with success in life, and by reinforcing the idea of the military supremacy of the knight, the position of the feudal nobility as the natural ruling chaste was made concrete.

During this period the pattern which formulated the nobilities attitudes to, and to a large degree their execution of war and the social standing of the warrior, was the code of chivalry.

To the ruling class, the virtues of being a warrior, with its worship of bodily strength, honour and dignity, vanity and pomp were perceived as attributes of a higher culture. To be ennobled and raised to the rank of virtue, the warrior aristocracy cloaked itself in the brilliance of the perceived heroism and integrity of a past age. All aristocratic life in the later middle ages was an attempt to act out the vision of this dream.(Huizinga 1982 p39)

The courts of kings and barons were entertained by minstrels throughout the middle ages, and heroic lays and epics such as 'The *Song of Roland*' and *Chansons de Geste* played a crucial role in the education of the lay upperclasses of Europe. From the lays and songs of these troubadours we learn a great deal about the aspirations of society

of the age. These courtly romances usually detailed the quests of knights in search of adventure to do honour to a lady. Often, they featured religious and mystical elements; the Grail Quest was a common theme. Arthur was beginning to be a popular figure of legend in the late eleventh and early twelfth centuries, made so by Geoffrey of Monmouth in his *History of the Kings of Britain* (c.1138). Solitary adventure, an atmosphere of fantasy, courtly love, and an emphasis on the code of chivalry were the leading themes of the medieval lay.(Brooke 1987 p109)

This harking back to a past age is the root of chivalry. It was used by nobles and historians of the medieval period to explain as well as they could the motives and course of history. Naturally history was thereby reduced to a spectacle of the honour of princes and the pride of knights. Through it, life could easily be perceived as a noble game with heroic rules.(Huizinga 1982 p66)

These heroic rules were of the utmost importance to medieval aristocracies which could not dispense with the severest rules and the strictest formalism. The code of military behaviour had come to permeate the whole world of knightly behaviour, not just the field of battle.(Brooke 1987 p111). In these violent ages all emotions required a rigid system of conventional forms, without them passion and ferocity would destroy the social organisation. (Huizinga 1982 p48). For as to how this aristocratic society originated, it is important to remember that it was at its inception a barbarian caste. Even by the late middle ages these men still had a strongly barbarian nature, and lived in a chaotic and brutal age.(Nietzsche 1973 p173). In this still quite primitive period, there was an almost religious significance applied to precedence and procedure, and honour due to rank was strictly observed. By this sublimating faculty, by this delight taken in every nuance of reverence, each event became a spectacle for others.(Nietzsche 1973 p183). Events such as mourning, welcome, celebration, eating at table and the events of battle, all revealed that "instinct" of reverence and rank which Nietzsche viewed as a badge of noble origin and habit: " It is the powerful who understand how to honour, that is their realm of art, of invention, deep reverence for age and tradition".(Nietzsche 1973 p177)

Nietzsche states that the moral value distinctions between the classes of society such as, in the middle ages, the noble's rules of courtly behaviour and its military code, the code of chivalry, arise among the ruling order because it was pleasurably conscious of its own distinction from the ruled, "Good" becoming by definition the "exalted, proud states of soul which distinguish and determine rank". He goes on to say that this egoism of the warrior aristocracy "pertained to the essence of the noble soul an immovable faith that to them, other beings had to be subordinate by their very nature".(Nietzsche 1973 p176)

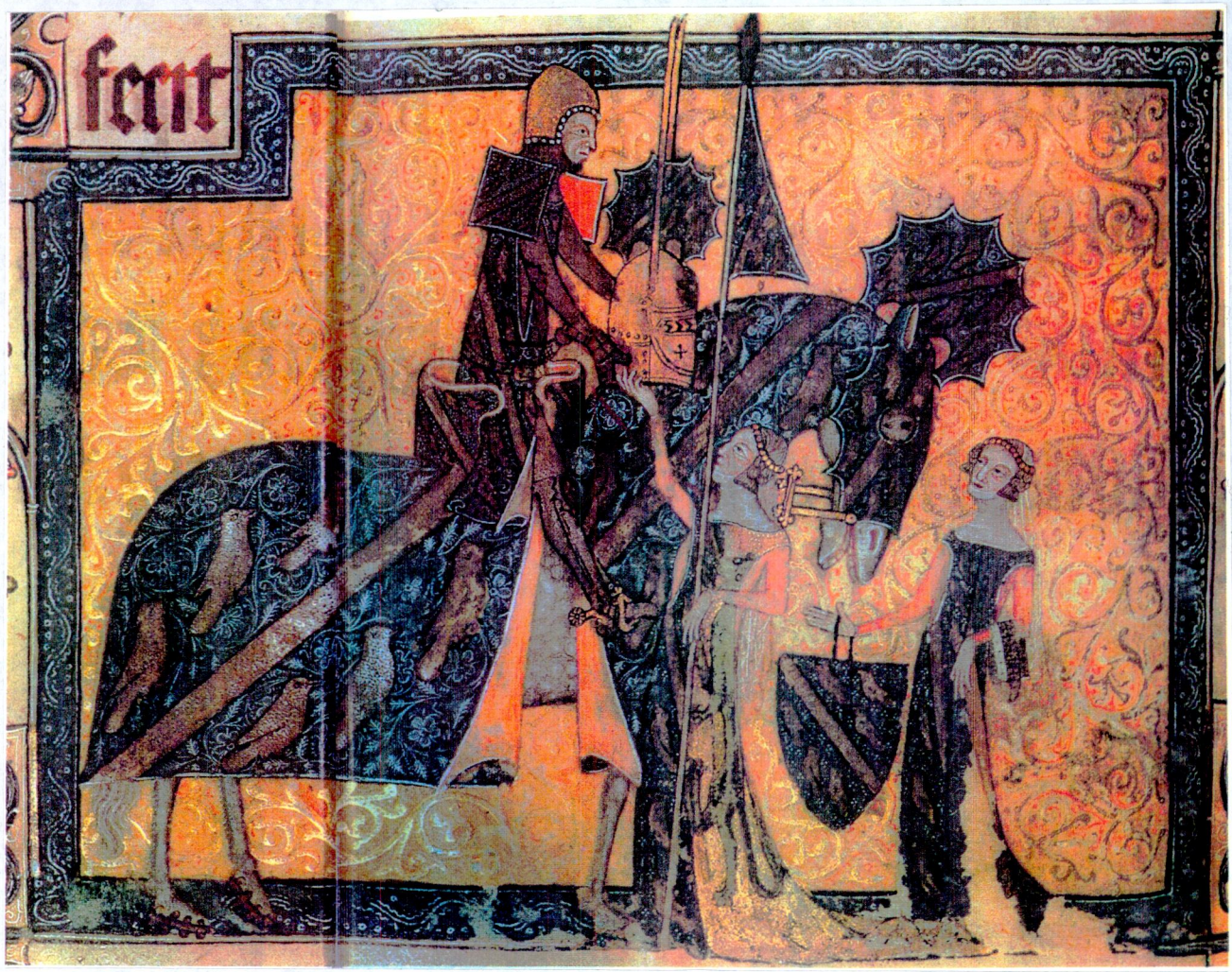
To the medieval mind the social structure of society consisted entirely and strictly of three orders of life; the nobility, the clergy and the common people. There existed the conviction that each of these orders represented a divine institution, a part of the organisation of creation coming directly from God and constituting actual entities, being as venerable at the bottom as at the top. However the value placed on each order did not depend on its utility, but on its sanctity, i.e., its proximity to the highest place. Hence the nobility, though largely useless as contributors to societies material wealth, were still exalted as elements of a higher social order by virtue of their birth and lineage, and by virtue of their traditional (though now outmoded) role as protectors of the material base. Also to the Catholic ethos of the age, the unworthiness of the persons never compromised the sacredness of the institution. The morals of the clergy or the decadence of the chivalrous virtues of the aristocracies may have occasionally been stigmatised, without for a moment taking away from the respect due to the nobility or church as such. These institutions were considered as bad or as good as they could be and having been ordained by God they were intrinsically good, only the sins of men corrupted them. The idea of a continual reform and renewal of society did not exist- the nobles and the church had the primary duty of keeping society healthy. The man of, say, the fifteenth century could not understand that real powers of political and social evolution might be looked for anywhere else than in the doings of the warlike nobility. The nobles were regarded as the foremost of social forces, while the social significance of the common order was undervalued altogether. If a particular kingdom was prosperous, it was through the bravery and virtue of the knights rather than through the toil of the citizens. The conception of society in the middle ages was static,

not dynamic, and looked more toward an ideal past than the earthly future.(Huizinga 1982 p55, p56)

The wealth and leisure time of the aristocracy of this period enabled it by the imitation of this past ideal to be the representatives of true culture through their conduct, through their customs, their manners and their costume. The dream of being a heroic figure full of honour and courtesy, ennobled the life and form of medieval nobility and formed the basis of the code of chivalry.(Huizinga 1982 p38)

The medieval formalising of this pride gave rise to the conception of honour which was the standard of noble life. The mixture of conscience and egotism is the sentiment of honour and the source of chivalry. But medieval thought did not permit ideal forms of noble life independent of religion, and from the beginning there was a spontaneous asceticism at the heart of the chivalrous ideal.(Huizinga 1982 p67). This was an indication of the strong connection between chivalrous notions and the religion of the day. When a young knight was being girded with the belt of knighthood, he went solemnly to the chapel, laid his sword on the alter, and offered himself and his service to God.(Brooke 1987 p109). Reciprocally, there was a concomitant glorification of the warrior by the church. In its thirteenth century formulation of Just War, the Church held that violent death suffered by a knight fighting in war, otherwise the most terrible of events, was not terrible when suffered for a good end, as was death in service of a community in defence of justice. The common good of the honour of the prince and the defence of the realm was justly served by the material fortitude of the warrior. Both warfare and warriors found inclusion in God's scheme and in human nature.(Russell 1979 p267)

The pattern the code of chivalry followed as an ideal form was a return to classical antiquity. Chivalry was perceived to be of Roman origin, and subsequently Romulus , because he raised a band of a thousand horse warriors, was taken to be the founder of chivalry.(Huizinga 1982 p69)



24 *Sir Geoffrey Luttrell c. 1370.*
His wife hands him his crested great helm which he wears over a visorless bascinet. Every piece of equipment bears the Luttrell arms expressing his family's name and knighthood.

The medieval knight was consumed by a thirst for honour and glory which went hand in hand with hero worship. It is this aspiration for the splendour of antique life which led to a revival of the splendour of chivalry which was found everywhere in the courts of Europe after 1300.(Huizinga 1982 p68) The aesthetic element of knighthood, as expounded by the early Templars and the Knights of St. John, that element of the code of chivalry which demands of the knight that he be humble, poor, carefree of material goods and wealth, obedient and dedicated to the rule of his order, is most accentuated at times when the function of knighthood was most vital, as in the times of the crusades. But the life of the knightly aristocracy of the later middle ages when they were still strong, but of small utility, tended to become no more than a game.(Huizinga 1982 p75)

In the fifteenth century pride and honour were treated with absolute seriousness and gave additional stimulus to war itself. The form of battle, the tactics, the costume, the procedures, were the realisation of a dream of beauty, vain, overloaded with pomp and decoration, but full of heroic fancy to express romantic dreams, to be adorned with all the medieval resources of fantasy and wealth.

Chivalry as a military or political guiding point was a great source of tragedy and resulted in crucial strategic and tactical errors. Eventually as a tactic it had to yield before military sense, but remained of utmost importance to the exterior apparatus of war until the widespread use of firearms rendered warfare mechanical. An army of the fifteenth century had the splendid show of a rich tournament of glory and honour. The primary military unit of a medieval army was a 'battle'. Composed entirely of horsemen, within it men were gathered around the banners and pennons of the chief knights of the host.(Fowler 1980 p149). They corresponded with the geographical and feudal groupings of the soldiers assembled. In feudal groupings the knights were usually the tenants and sub-tenants of the primary knight of the battle unit.The multitude of banners, the sound of clarions and warcrys resounding all day long, the awesome military costume itself, and the frequent ceremonies of dubbing knights before combat, tended all the more to give war the appearance of a noble sport.(Huizinga 1982 p97)

Armour had already begun overtly to reflect all these knightly notions. From the early twelfth century there were crests adorning the helms of knights and heraldry, the surcoats and jupons. In the fifteenth century when armour had attained its functional optimum it reflected the splendour and vanity of the noble class and its aspirations. In the last developments of plate armour we can see the greatest works of craftsmanship of the German and Italian armourers. All through the fifteenth century the Franco-German court of the dukes of Burgundy was the home of fashion, and after 1425 the armourers of Germany began to introduce distinctive variations upon the older universal-type armour which preceded it. Clearly the German armourers were trying to imitate in steel the cut and hang of civilian doublets.(Oakeshott 1980 p78). During the turn of the fifteenth century the Italians began to do the same though they had already developed their own stylistic groups.(Oakeshott 1980 p92). These two countries had the most advanced centres of armour-production in Europe at Augsburg, Innsbruke, Brescia and Milan, producing armour of the highest quality in production quantities. In 1427 Milan had become such an important centre that it could supply the armour for four thousand cavalry and two thousand foot soldiers from its warehouses within a matter of days. As early as 1398, Milanese armour was being exported to England.(Fowler 1980 p107).

The true warrior went to war as if to a festival, and dressed himself accordingly. Often when he went on campaign, the medieval warlord had armours and garnitures especially made for the occasion, armour as fine and as elegantly decorated as for a parade.(Oakeshott 1980 p26). Chivalry dictated that the noble way of fighting a combat was to match with an enemy on equal terms and through skill of arms and bodily strength, and by the will of God was the victor chosen. This and the general propensity during the middle ages to settle quarrels of all kinds through duelling led to the legitimising of the method of deciding political differences by single combat between the princes concerned or their representatives. In these very formal military encounters, the staging and ceremony of chivalric warfare were at their most prominent. When the duke of Burgundy challenged the duke of Gloucester to a duel in 1425 over the question of Holland, Burgundy waited by his tent at the appointed place with his magnificent armour and his state dresses,

the pavilions and standards, the banners, the armorial tabard for the heralds, and everything richly adorned with the duke's blazons and emblems. Ironically, due to the intervention of the king, the combat never took place.(Huizinga 1982 p94)

This chivalric concept was extrapolated on the battlefield as a whole. Warfare here was seen as a series of equal engagements conducted in such a manner as to show the prowess of the individual knightly participants. A head-on clash, used by chivalry as the almost sole tactic in battle since the first feudal knighthoods, was the epitome of chivalric battle-order, and the most impartial trial.(Fowler 1980 p149)

Obviously insofar as they affected warfare, the chivalrous methods detracted from the efficient conduct of wars. The emphasis of chivalry was on the manner of the accomplishment rather than on the thing accomplished, on the glory rather than on the results.(Fowler 1980 p149)

It came to be seen that these idealistic but unrealistic applications of chivalrous notions would result in tragedy and military bungles, and that the introductions of new weapons and new tactics on the field would make a nonsense of chivalrous notions and eventually destroy chivalry in war at its roots, by undermining the military monopoly of the knightly class. For with the coming of gunpowder and "non-noble" weapons such as the handgun, close on the heels of the efficient use the longbow, and in connection with other new arms designed for use against armoured cavalry, infantry tactics would assume superiority on the battle field while the horseman was reduced to being simply an element in the efficient fighting of a battle.

However, chivalry should not be dismissed as simply the pompous imaginings of a class, for it symbolised one of the most important aspects of feudal organisation; the unique phycology of loyalty and honour which underpinned all medieval life.(Cohen 1978 p144). Chivalry is perhaps the clearest example of the character of the medieval social value system. Medieval precepts of organised society gave to each station of each order , no matter how menial or exalted, a sacred character and a certain quality of occupation.

Here is the clearest distinction between the tenor of feudal life and that of the later forms of competitive consumerism which followed, even to this day. The serf and the lord stood outside competition. This gave to feudal society a concreteness and stability which lent to the conservation of feudal modes of production and also to its unique relations of ancient and venerable prejudices and opinions.(Marx, Engels 1977 p39)

The later forms of social organisation, arriving on the tides of increased free-trade, relied on cold calculatory definitions of social worth. Here, the values placed on each service, be it agricultural, commercial, or military and on each member of society, male or female, father or son, were expressed in the terms of cash payment.(Marx, Engels 1977 p38)

In such a stark and alienating system, where relations of social interaction were money based, and the only nexus between men was naked self-interest, the essential medieval religious and chivalrous enthusiasm was drowned. In the face of this new system, whose values were so at odds with its own, all that was solid in feudal organisation melted, all that was holy was profaned and concepts of honour and loyalty, where ever they occurred in social life, became inefficient and ridiculous.(Marx, Engels 1977 p38-9)

After the waning of the middle ages, the knight with his ethical code of honour would become the object of comedy and satire, as an unpractical, romantic idealist, like that "knight of woeful countenance", Don Quixote, in Cervantes sixteenth century classic.

But the life Europeans were to lead under the new system, however logical and practical, was bleakly colourless and dehumanising. The twentieth century revival of feudal ideals as expounded by the fascist movements of the twenties, thirties and forties reflected the desire to inspire in the life of modern society the etherial yet genuinely valuable elements that had existed in feudal ideology.

However these twentieth century movements were rightly

condemned as reactionary and authoritarian. Yet this element of fascism was also a genuine reflection of the authoritarian nature of feudalism with its rigid class structure, though feudalism was never tainted by the rabid racism that poisoned the fascist dream. The power and majesty of feudalism was reflected in fascist propaganda- the decoration of fascist symbolism at the Nazi rally of 1934 at Nuremberg was clearly inspired by feudal heraldry and was a testament to the power of the feudal imagery which was so important to concepts of chivalry.

4
REBIRTH OF THE FOOT SOLDIER.

In the face of the rising populations of the fourteenth and fifteenth centuries and the resulting increased demands on the productive system, feudal organisation began to fail to cope with the vastly increased demands for food fuel and clothing. As feudal productivity failed to keep pace with the demand, goods became scarce and prices rose.

In the urban centres of Europe by the middle of the fourteenth century there began to develop a proto-bourgeoisie. The manufacturing systems of this class proved much more adaptable to the new situation than the feudal productive systems' guild practices and inefficient manor based agricultural organisation. By the middle of the fourteenth century the feudal system was beginning to stand in the way of greater productivity. (Knecht, Robert. 1969, p 49 - 50.).

Independence minded communities across Europe began to feel feudalism's inefficiency and oppressiveness and organised themselves into armed self-governing associations and urban republics, paving the way for the full development of a boureoise in the sixteenth century, and represented the tentative beginnings of a democratic national awareness which, with the growth of capitalism, was to transform European society in the Renaissance period. (Marx, Engels. 1977, p 36)

From these communities struggling to wrest their independence from feudal overlords, weapons for foot soldiers were devised which would address directly the tactical problems posed by feudal armoured cavalry. Against armour design for cavalry, was placed weapon design for infantry.

From the deployment and use of the longbow on the continent by the Norman forces of England during the hundred years war, it began to be seen that the common foot soldier could affect the outcome of a battle, even decide it.(Oman 1924 p235). With this new missile

weapon, by its nature the weapon of the common man (pulled to the breast as opposed to the chin in the case of the shortbow) it was shown that traditional tactics and all they implied were ineffective against an army commander willing to dispense with the idealistic concepts of chivalry.(Oman 1924 p58)

Bowmen had always been known on the battlefields of Europe, but had never formed either the most numerous or effective part of a feudal host. The supremacy of the mailed horseman was unquestioned and infantry only appeared as an auxiliary arm of no great importance.(Oman 1924 p57). During the eleventh century, in armies across Europe the bow began to be replaced by the much more powerful crossbow, and archery fell into decline. In the records of some battles, it received less mention than the archaic and very inefficient sling.(Oman 1924 p59)

However in England in the twelfth century, the crossbow, always perceived as a foreign weapon, was largely superseded by the longbow. The crossbow was one of the first mechanical weapons to be widely used on medieval battlefields, but was never revolutionary to either infantry tactics or to the demise of the armoured knight in the social or tactical way the longbow was. Perhaps its most telling use was in the early days of the Hussite wars of Bohemia in the fifteenth century, where it was used as a support weapon to the handgun. But the success of the handgun on those battlefield soon led to its demise as a regular infantry weapon.

Evidence seems to show that the commanders of England originally learned its use from the southern Welsh during the Norman subjugations of that country. Giraldus Cambrensis, a twelfth century chronicler of Welsh and Irish topography, speaks repeatedly of the men of Wales exceeding all others in archery and that they used a special bow of tremendous strength and exceeding length. These bows were made originally of elm, stiff, large , strong and capable of both long and short range shooting.(Oman 1924 p59)

Giraldus observed the strength of their shooting at the castle of Abergavenny. In the seige of that castle in 1182, the Welsh arrows

penetrated an oak door four inches thick. This was perceived as such an incredible feat for a bow, that they were allowed to remain there as a curiosity, their iron tips just showing on the inner side of the door.(Oman 1924 p59)

After the conquest of Wales, English armies contained many longbow companies. In his wars in Scotland, Edward I learned much about missile tactics, and afterward assigned a greater importance to infantry equipped with missile arms. In subsequent English feudal levies, the bulk of the armies, composed of the poorest citizens, were required to arm themselves with bows and arrows.(Oman 1924 p60). Thus the longbow became the prescribed weapon of the common class of subjects in the realm.

The height of the longbow corresponded to that of the archer. It was a bow of plain composition i.e. it was made of a single piece of wood, the most suitable material being yew.The English considered Italian yew to be the best of all, and they became the largest consumers of it in Europe. In order to procure it, a trade agreement was entered into whereby the English agreed to import Italian wine with the proviso that each barrel be accompanied by the trunk of a yew tree from which a longbow could be made. Bow staves were also imported from Spain and Austria. In the first half of the fifteenth century, an order was issued stipulating that yew trees be grown in every churchyard.(Tarassuk/Blair 1982 p96, p98)

In early bows, the string was a tough cord made of gut or sinew. For the longbow the sciatic nerve of an ox was used, or a thin strip of hide, or a length of twine made of horse hair or vegetable fibre. In order to fit it to the bow, one end of the bow was placed in one of the hoops of the bowstring, then the knotted tip was held by the archers foot, he then forced the bow to bend over his thigh until the bowstring could be slipped over its other tip.(Tarassuk/Blair 1982 p101)

Edward III, bred in the experience of the long Scottish wars was to apply the lessons he learned there to the new struggle on the continent during the Hundred Years War. Here he saw that the hope of meeting the French lance for lance in the open field in the chivalric fashion was

useless, for his forces were vastly outmatched in numbers of mounted men. As a solution, Edward decided to use infantry tactics and his longbow companies. At Crecy, the first major clash between the French and English armies, there was the spectacular beginning of a revolution in missile tactic.(Oman 1924 p112)

At the battle of Crecy in 1346, there began a switch in emphasis from the horse warrior to the foot soldier. The chivalric charges of the French nobles were utterly broken under the hails of arrows from Edward's archer companies. This was the first major use of the longbow on the continent. It had the range and power of the crossbow, but while the medieval crossbow required complicated cranking and levering processes using separate equipment to load, for the longbow loading and aiming were almost one movement of the archer's hand. Consequently the longbow had a much higher rate of fire; twelve shafts per minute compared to the crossbow's two.(Fowler 1980 p108, p109)

25 *Crossbow and longbow. Here the crossbow man must use a cranequin on his belt, to load his weapon. A detail from a minature of the Motagne - sur - Sevre. 1377.*

The longbow's shafts nailed steel caps to heads, pierced mail, brigantine, gambeson and breast, and the arrow hail maddened the French horses.(Oman 1924 p142). Later, medieval historians searching for reasons to explain this failure of chivalry, refused to see the significance of the archers because of the implications of admitting a

peasant infantry victory, albeit under the command of nobles, over the chivalry of French Noblesse.(Oakeshott 1980 p30)

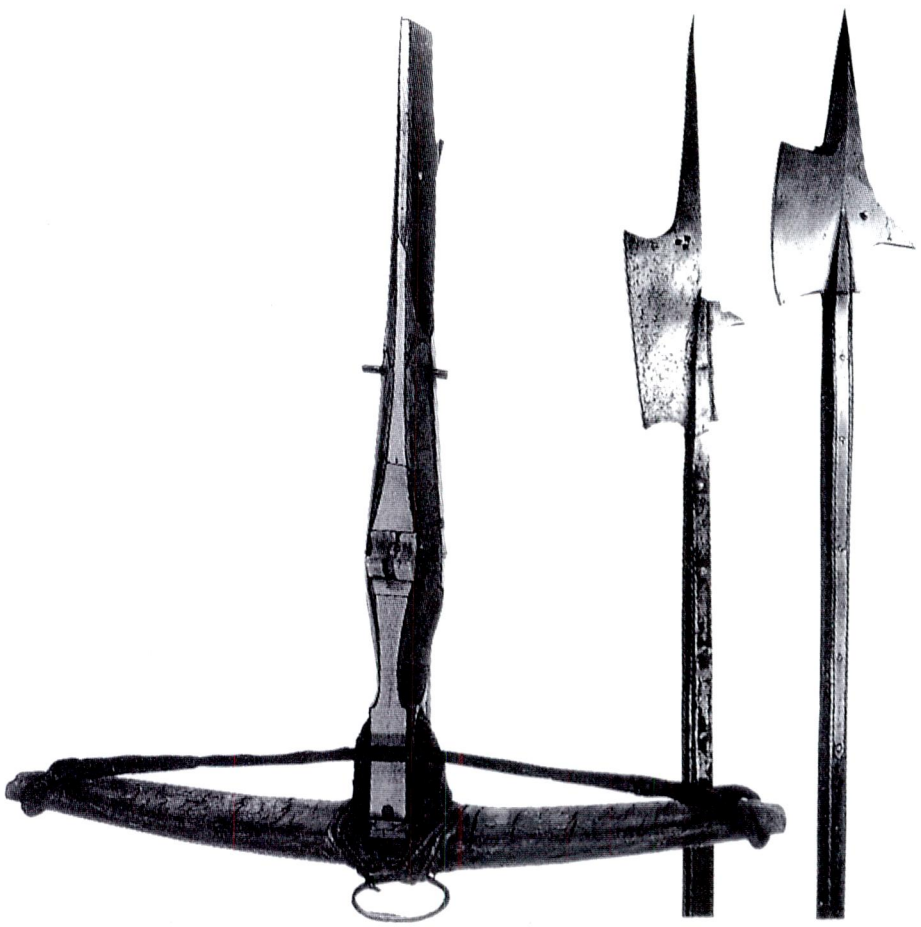
A practical result of the introduction of the longbow was the development of plate armour designed to deflect rather than absorb blows. The traditional chainmail armour had only to absorb the impact of arrows from the shortbow, the longbows shafts could puncture chainmail easily. A knight of William de Braose's company received an arrow that went first through the skirts of his mail hauberk, then through his mail beeches, then through his thigh, then through the wood of his saddle and finally penetrated into his horse's flank.(Oman 1924 p59). However, by the fifteenth century, the designs in plate armour had improved so much that it was almost proof against longbow or crossbow shafts, except at very close range.(Oakeshott 1980 p30)

The further success of longbow tactics led to much greater importance being assigned to infantry equipped with missile arms. But over on the other side of Europe from an earlier date there came to the fore another infantry force using armour cracking staff weapon designs. From the beginning of the fourteenth century there was a succession of victories for a nation which used the infantry arm unassisted against enemies who relied on their superiority in cavalry. The Swiss started on their astonishing career of infantry triumphs thirty-one years before Crecy. So great was the moral effect of these battles with longbow and pike, that a fatal blow was delivered against feudal chivalry- so much so that for over a century the armoured knight abandoned his charger and also fought on foot.(Oman 1924 p233)

The battle array that the Swiss employed were deep columns of foot soldiers armed with pikes or halberds. The long pike was a superior weapon for keeping off cavalry, but the halberd had excellent armour piercing qualities for close quarter fighting. Up until the coming of the halberd and the subsequent developments in staff weapon designs, the infantry man had only his simple spear with which to face cavalry men. Spear thrusts were largely ineffective against plate armour, but the advantage of the halberd was in its combination of axe and spear.(Tarassuk/Blair 1982 p245). The infantry man now had a weapon with which to reach his opponent on horse. If its eight foot length was

ponderous, it was also the most murderous of weapons. Swung by strong arms it could cleave helmets and plate armour as no sword could do.(Oman 1924 p254) It had more effect than any other non-missile weapon on the development and continued improvement of armour. It was also the means by which the Swiss came to be most prominent on the battlefields of Europe towards the end of the fourteenth century, a prominence which led to their later adoption of the pike as their national weapon.(Oakeshott 1980 p51)

Even after the pike became prominent, the Halberd was still used as a support weapon, along with the enormous double-handed broadswords they also used.(Oman 1924 p255, Oakeshott 1980 p148)

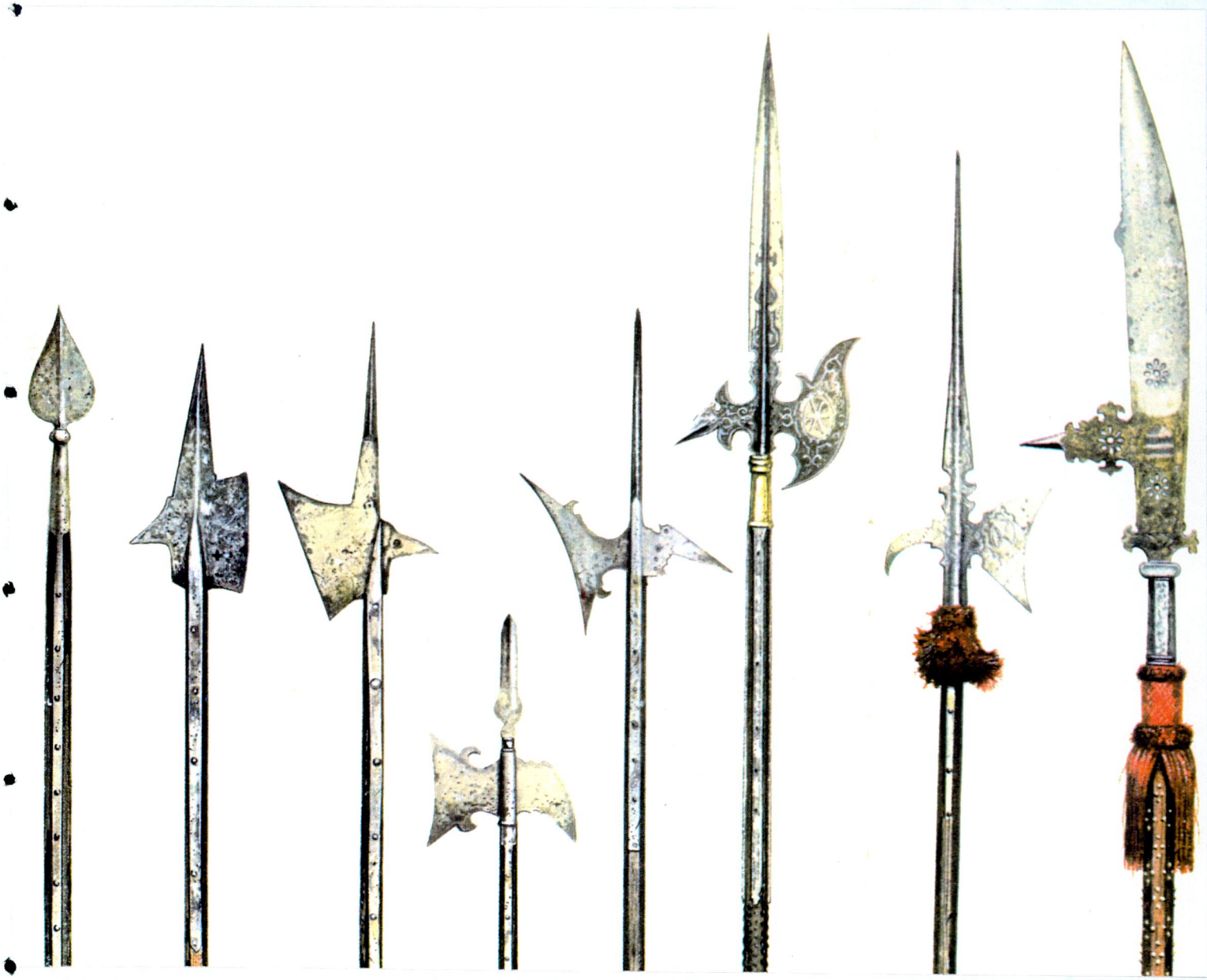


26 *A crossbow and two halberds, mid 15th Century. The langets securing the halberd head to the staff also prevent an enemy from hacking the bladed part off in combat.*

The eighteen foot pike with its ten inch steel head was grasped with two hands and levelled at the shoulder, its point slightly down turned, behind were the pikes of the second rank, angled slightly higher, behind them were the pikes of the third and fourth rank, the men on the interior of the column held their pikes upright ready to take the place of a fallen comrade. What the opposing cavalry saw was an impenetrable hedge of bristling points, against which their charging horses balked.(Oman 1924 p255, Tarassuk/Blair 1982 p366)

Apart from their new weapons the Swiss had another advantage: their columns were extremely pliable and moved with an extreme rapidity, as they wore little armour. Their tight, simple and irresistible formations also operated with the strictest discipline. Compared with this new force of infantry the slow-moving feudal armies found it hard to manoeuvre, strategically or tactically.(Oman 1924 p256)

The traditional feudal soldier was summoned from his peasant fields by his lord on command of the feudal levy. This was the traditional army service due to his feudal king. He was given little training, very inferior weapons from his master's stock and his armour consisted at most of some sort of gambeson. In a battle the traditional feudal footsoldier played almost no tactical role, forming up behind the battle units of armoured cavalry that were the nobles. They followed the charge as best they could to finish off what remained of the enemy after the chivalric charges had broken his lines and scattered his forces. However if the charges of their noble overlords failed, this undisciplined group were just as likely to scatter off the field themselves.(Oman 1924 p240). They were regarded with disdain by their feudal overlords; "A hundred horse is worth a thousand foot", said one feudal noble resolved to making a frontal assault on the positions of rebellious Flemish peasants at Courtrai in 1302.(Oman 1924 p115)



27 *Staff weapons. From left to right:*
1 Pike, 1490. 2 Swiss halberd, 1350. 3 German halberd, 1500. 4 German halberd, 1740. 5 Italian halberd, 1550. 6 German halberd, 1600. 7 German halberd, 1610. Italian Glaive, 1420.

Yet the victorious Swiss armies were composed entirely of peasants and mountain men from the Alps, and they fought with the ferocity and discipline of an organised army possessing more of these qualities than the best feudal armies sent against them. In the new infantry armies of the Swiss, the feudal constraints which enabled a first man to direct a second just in virtue of who the first and second men were in relation to each other, were invalidated because this army was made up of men fighting in a commonly agreed cause.(Cohen 1978 p125). Upon the battle field they formed a homogeneous force, all were of equal rank, and with their sound national tactic they needed no great commander to have significant success. In the egalitarian Swiss system, experienced veterans elected or nominated by their comrades guided the war columns. The conduct of the campaign was in the hands not of a single feudal-style overlord, but of a council of war composed of the captains of each cantonal contingent, and settled questions which came before it by discussion and by voting. The holders of posts of command did not have the permanent status of divisional generals, but enjoyed only a delegated authority. The captain was an old soldier who had won distinction on bygone battlefields, but except in his wider experience was little different from the men under his command.(Oman 1924 p233)

This was the antithesis of the militarism of the feudal model, which claimed the fighting of wars and the command of armies as the strict prerogative of a specific social class. In the feudal model, the intentional actions of fighting were social in that there was explicit reference to social rights or powers in the context of the intention.(Cohen 1978 p96). The noble class rode on horseback and wore armour as an attribute of their class, command of an army was an attribute of their class, it was also the attribute of their class that decisive fighting be between noble and noble, horse warrior versus horse warrior. Though commoner and noble were involved in the thick of battle, both fighting equally for their lives, there were clear social distinctions between them even in the act of desperate close-quarter fighting. In certain instances, it was actually illegal for a commoner to kill important nobles even in circumstances of close hand to hand combat.

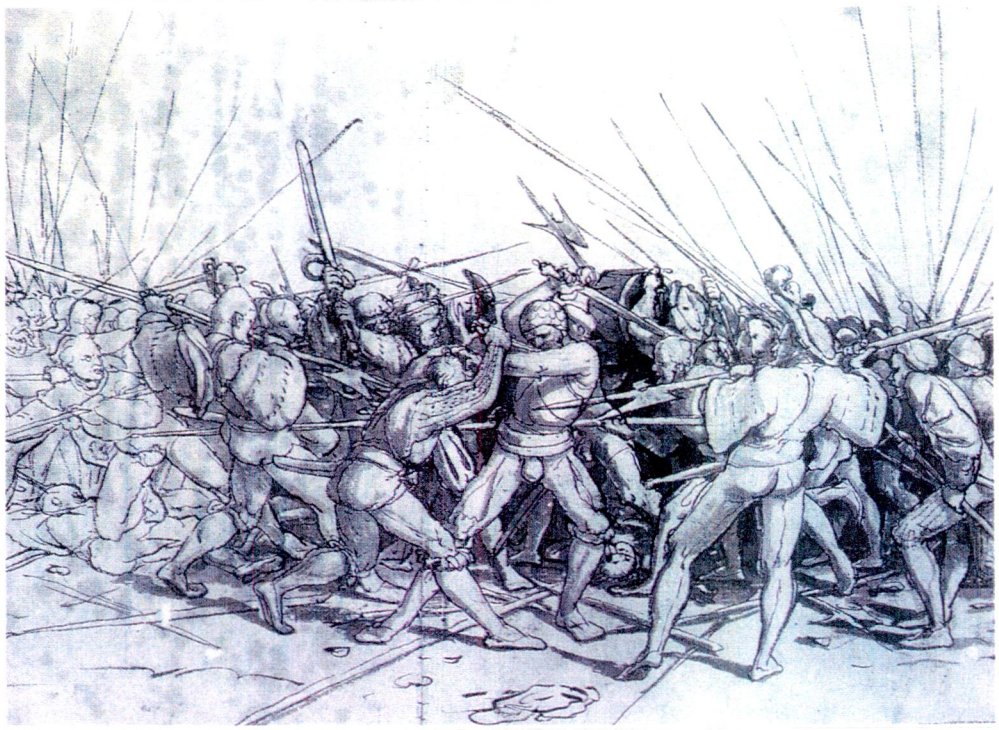
At the battle of Morgarten in 1315 the cream of Austrian Chivalry sent to crush Swiss nascent independence was utterly destroyed in

ambush by Swiss columns wielding their fearsome new weapons. The impression made at Morgarten by this defeat of chivalry was profound. There had never before been a case in the Holy Roman Empire of a complete and bloody defeat of a feudal army by mere peasant infantry.(Oman 1924 p241)

Again the historians of the age found it hard to explain, but the admirers of medieval chivalry comforted themselves by saying the ground and generalship were at fault. But later in 1339, at the battle of Laupen, the Swiss defeated another feudal army. Here the infantry had beaten cavalry on a shallow hillside where there was no difficulty in forming up and charging. Again the moral effect was very great and a heavy blow had been dealt to the supremacy of the horseman in Europe. At Laupen the deficiencies of chivalric battle were clearly exposed. The armoured nobles had no tactical idea in their heads and merely tried to win by the chivalrous method of the charging squadron.(Oman 1924 p245). The Halberd did here at Laupen what the longbow was to do at Crecy in 1346. That infantry should possess qualities of bravery and discipline came as a surprise to the historians, conditioned as they were to attributing military virtues to the knightly classes.

Events in Bohemia in the fifteenth century were to shake those assumptions even further. The followers of John Hus were to face feudal chivalry with new weapons and new tactics. Here the Hussites were the first to use handguns on a large scale.

The longbow, the halberd , the pike in the hands of peasant infantry across Europe had shown at Crecy, Morgarten and Laupen that feudal military might was no longer the primary force on the plains and in the mountains of Europe. Feudal military authoritarianism had been discredited, and the mere existence of the independent cantons of the Swiss confederation proved that feudalism was not the natural social order for Western civilisation.



28 *Swiss pikemen and halberdiers in action.*

5
INTRODUCTION OF THE HANDGUN.

Ultimately, feudalism was superseded by the productive and technological development of European society. More than any other previous military design, firearms were made possible through significant scientific discovery and successfully developed through capital market manufacturing techniques, and epitomised the productive and technological progression which overcame feudal structures.

The handgun was the weapon that destroyed what remained of feudal militarism. Like the other infantry weapon designs that similarly undermined feudal social relations through their battlefield applications, at its introduction the handgun was the weapon of rebellious common order men anxious to form their own independent state free from the outmoded social and economic restrictions of feudal organisation.

* * * * * * *

By the end of the thirteenth century a new explosive composition of substances with more than a merely incendiary potential had been discovered. By the early fourteenth century it had been discovered that this material could be put to its best use by employing it to propel missiles from tubes, as it had a propulsive power. From this, artillery came onto the battlefield in a new shape. (Up until gunpowder weapons, large military slings and catapults had been the main field pieces.)

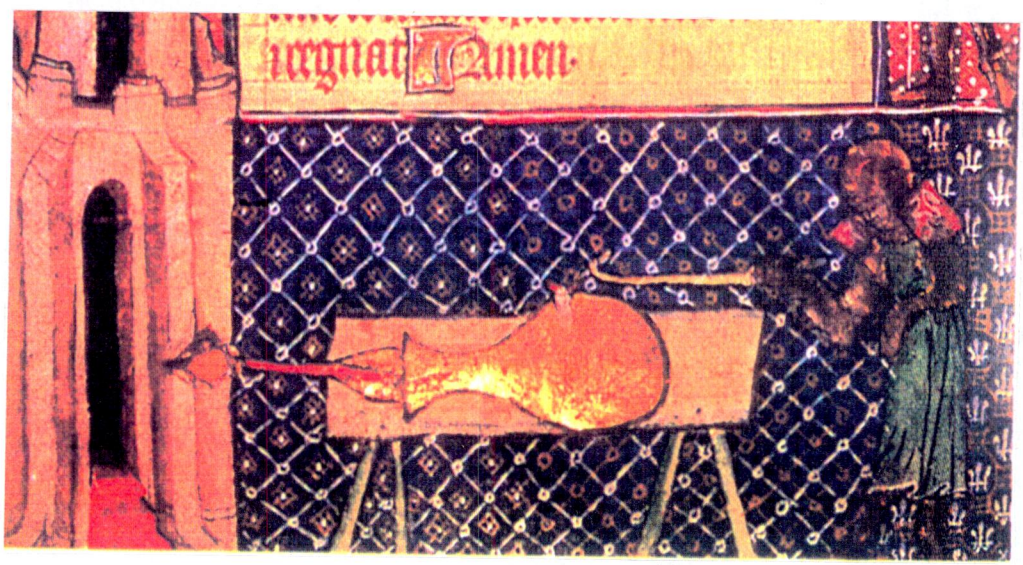
For some time after its discovery, explosives were not used for any such propulsive purpose but merely as a superior form of incendiary device which not only set fire to things with which it came in contact but also shattered them with a loud noise.(Oman 1924 p205). The idea of the battering cannonball, projected from a tube with the purpose of destroying stone fortifications is a notion of the fourteenth century.

All attempts to prove that the credit for discovering gunpowder

should be given to the Chinese appear to come from misconceptions made by translators as to the meaning of certain words describing military devices found in the chronicles of Chinese history. There is no doubt that the Chinese possessed incendiary compounds long before the tenth century of our calender, but that they had explosive compounds is nowhere concretely proven.(Oman 1924 p206)

But that a mixture of saltpetre, sulphur and charcoal had explosive effects was known to a few western observers by the third quarter of the twelfth century. Roger Bacon writing later in 1257 laid down the thesis that science could produce marvels as great or greater than those ascribed to magic. Among his marvels was that a mixture of saltpetre and sulphur mixed with charcoal would produce a loud explosion and a bright flash when touched with fire.(Durdik 1985 p13)

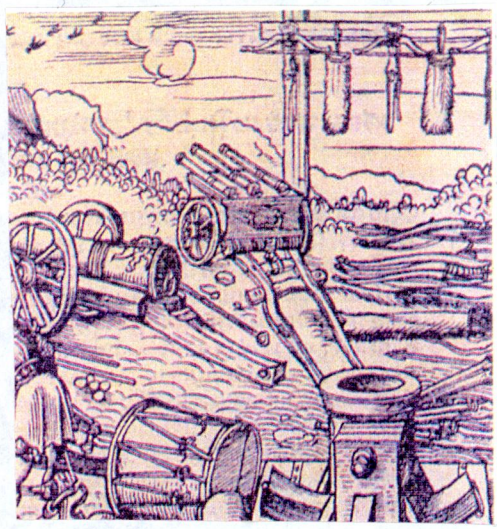
The first propulsive uses to which this new substance was put was in rocket or cracker form, but by 1325 there are the first reports of gunpowder being used to throw balls from tubes.The earliest western gun pictured was in a drawing of 1326.(Durdik 1985 p14, Wilkinson-Latham 1981 p184) . It represents a knight firing a cannon shaped like a vase or a bottle by means of a lighted stick. The missile is a heavy looking iron feathered arrow seen leaving the gun on its way to break a castle door.(Cross 1991 p88)



28 *The earliest picture of a Western gun. From the Milmetre manuscript, 1326.*

By the beginning of the Hundred Years War in 1337, the widespread use of some form of cannon was already ten years old. However, they were still in their experimental stage and not yet making any impact as a decisive weapon in war.(Durdik 1985 p16). The best testament to their unimportance was the lack of interest shown in them by contemporary chroniclers.(Oman 1924 p215)

In 1339 there is the first mention of the primitive cannon called the Ribauldiquin. It consisted of several small tubes clamped together with their touch-holes arranged so that one sweep of the linstock would discharge them simultaneously. They were mounted on a beam which was given wheels and a screen called a mantlet to protect the gunner. From the small size of the individual cannons and the concentrated fire they were presumably supposed to give, it must have been primarily as a defensive weapon for blocking a passageway or a breach.(Oman 1924 p216)



29 *15th Century orgelshutz or organ gun. Similar to the ribauldiquin, of the 14th Century.*

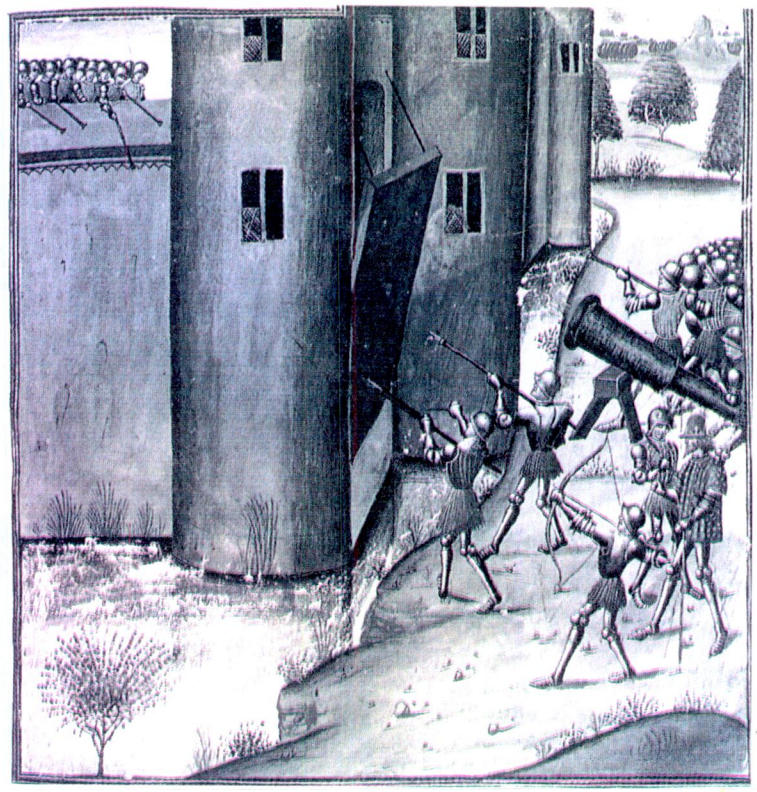
Mentions of artillery became numerous in all countries after 1346, and they began to grow in size and were cast in brass or copper, rather than iron. Generally the bigger individual cannons developed by the fourteenth and fifteenth centuries were seldom used save for siege work.(Durdik 1985 p20). The Ribauldiquins were the main field pieces, and it was from the small tubes of this light artillery piece that the earliest handguns can be traced.

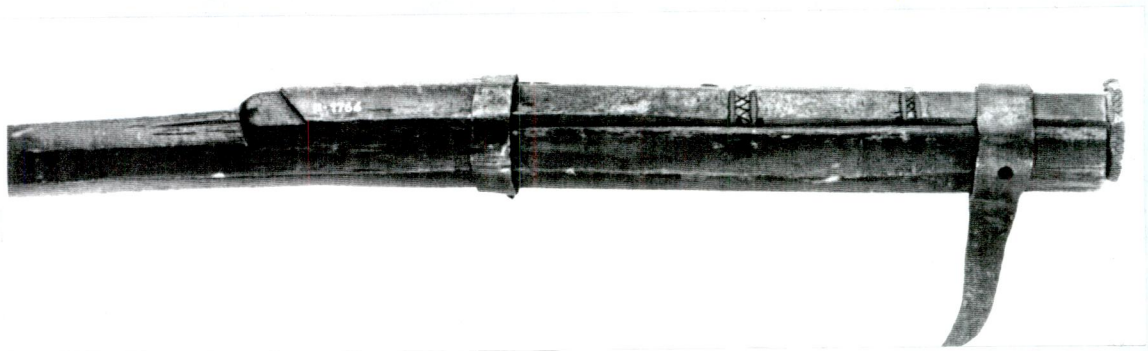
Within a decade or so of the introduction of the Ribaldiquin it began to be seen that a single tube might be utilised separately by being fixed on a staff and carried in the hands of a soldier. It could be said that the ancestor of the rifle was a toy cannon strapped onto a pike handle. In 1364 the Italian town of Perugia ordered five hundred little "bombards" of only a palms length to be made and it was noted that they were to be portable and fired from the hand. In 1386 the name "hand gun" appears.(Oman 1924 p228). Manuscript drawings show these weapons to have very long staves-they were held under the soldiers arm with the butt of the staff resting on the ground to absorb the recoil. They could only be fired at a high trajectory. After 1420, the hand gun , still only a simple tube with a touch hole fired by a match, began to shorten and was aimed from the shoulder.(Oakeshott 1980 p31)

30 *An early hand gun c. 1400.*

By the middle of the fifteenth century the pole-like stock had been improved by shortening it and making it into a flat oblong section. Many gunstocks began to be made with rudimentary butts, either a broadening of the end of the stave, or a sharp downward curving hook-like

design.(Oakeshott 1980 p33)

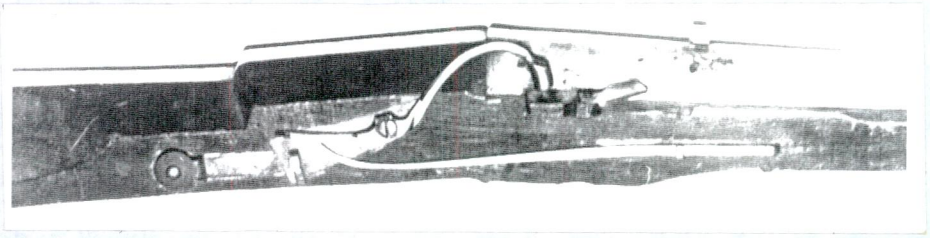




31 *Gunpowder weapons in action. From a 15th Century illustration.*
32 *Iron handgun with hook set in stock. c. 1425.*

As well as improvements in the form of the gunstock, there was an enormous advance in the process of firing. The original hand guns were fired off in the same way as large siege cannon; by application of a lighted match to the touch hole in the breech of the barrel. But while the gunner had to hold his touch-light in one hand, he could not adequately steady or aim his gun.(Durdik 1985 p15). So a simple device was added to the right hand side of the stock, just behind the touch hole: a long S-shaped arm fixed to a pivot. The lower hook of the S acted as a trigger for the shooter, the upper hook reached up above the barrel and to its tip was clamped the glowing end of a slow burning touch light. To shoot

the gunner pulled the lower hook of the arm upwards, thus bringing the shorter hook downwards onto the touch hole.(Oakeshott 1980 p33)



33 *Iron hand gun, with S-shaped "serpentine" triggering mechanism. Mid 15th Century.*

Thus by 1450 there existed the Arquebus handgun. It was on this design that all future improvements and developments were based and it was this weapon above all others that laid to rest feudal chivalry and the armoured knight.

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It was this form of weapon that the Bohemians used in their battle against the German and Hungarian Knights sent to suppress their rebellion in the first half of the fifteenth century. The Czechs had risen in 1420 full of a resolve to defeat the hated German invader, but moved even more by a determination to avenge their martyred prophet John Hus. The Bohemian army did not have the advantages of popular armies of the Swiss communities, who were long trained to arms and skilled in the use of pike and halberd, with a tried-and-tested national tactic to rely upon. Under the traditional tactical system, the Czechs would have fared no better than other peasant infantry armies like the popular army of Flanders, crushed utterly in their combat with their feudal noblesse in 1382.(Oman 1924 p362)

It was necessary for them to devise some method of holding out against an enemy hopelessly superior in cavalry. The Czech horsemen were few because a large proportion of their nobility were hostile, or at best lukewarm to their cause.

As a solution the Czech commander, John Zisca, organised a

defensive tactic where wagons were used as a mobile fortification. These wagons and carts were formed into a square with the openings between them blocked with chains and posts. The men of the army were told off into sections, each section taking a position in a wagon. Half of each section were armed with long staff weapons, pikes, halberds, pitch-forks,scythes, or the special Bohemian war-flail, the other half were armed with missile weapons, among which the handgun came to predominate.(Oman 1924 p365)

This tactic could only be effective if the enemy could be persuaded to attack the wagon-fort. Of course, the feudal nobles ranged against them could always be relied upon to attack, full of their chivalrous confidence and pride and contempt for pedestrian enemies. The Germans used the traditional chivalrous frontal cavalry charge, lances levelled, advancing in a thunderous mass.(Oakeshott 1980 p36). The Hussites behind their war carts waited until they were at point blank range and then let drive all together with everything they had. The effect produced by this massive burst of gunpowder and bullets on the charging ranks of close-packed horsemen is easy to underestimate in the twentieth century. At that range the balls of the Hussite guns smashed through plate armour as if it were paper, and men and horses faced the terrifying flash and thunder of the discharge right in their faces. What few Germans survived the initial destruction, tried to penetrate the wall of wagons while the gunners were reloading, but here the halberdmen and pikemen held them back, and all the time they could see the gunners preparing to fire again. The second volley would utterly rout them, and then the Czechs would go on the offensive, rushing out among their demoralised enemies to seal victory. After the first campaign the Germans would never face more than one volley, soon they could not be induced to even attack the wagon forts at all.(Oakeshott 1980 p37)

Zisca was the first general in Europe to specialise in the smaller firearms as a weapon for large bodies of infantry. For the last thirty years they had been known, but were used only in small quantities, mainly for shooting from walls during sieges. Zisca reasoned that the whole front of his wagon fort was the equivalent of a fortress wall, and that gunners standing in the carts would have rests for their clumsy weapons.(Oman 1924 p365). Moreover, having a greater kinetic energy

than arrows, the iron ball of the handgun was much more effective for dealing with the thick double covering of mail and plate now used by knights. A ball would go through where an arrow glanced off.(Cross 1985 p99). There was also the great moral effect in the flash and thunder of a salvo of guns, many hundreds of guns letting fly at once- much more terrifying than archers' volleys. So much were small arms valued by Zisca and his followers that by the end of the war over a third of the army were using them, and when it was over Bohemian soldiers serving as mercenaries were usually noted as handgun men.(Oman 1924 p366)

By 1450 armoured knights were obsolete, but the nobility of Europe persisted in using them for another seventy five years. It was not until the battle of Pavia in 1525 that Emperor Charles V's Imperial Spanish Arquebusers finally made it plain to all that no force of armoured chivalry could any longer be effective against the power of the bullet.(Oakeshott 1980 p38). From that time on armour was in decline, shed in bits and pieces throughout the following centuries and eventually losing its social significance.

34 *"Armour of proof", an example of armour designed to prevent penetration. English civil war.*

The discovery of gunpowder and its efficient introduction into society in the form of firearms as well as sealing the fate of feudal military power, also marked a significant landmark in the development of productive forces and production relations, and the transformation of the tottering feudal organisation from a non monetary rural organisation into a new system of mechanical supremacy and capital market structures.

The invention of gunpowder weapons illustrate the Marxist notions of productive development revolutionising social organisation; as a result of the fifteenth century perfection of complex technological processes such as the quenching, tempering and case-hardening of ferrous metals and the casting of non-ferrous metals such as bronze, combined with the use of new tools of production like the water powered tilt hammer and the water powered grind stone, efficient and workable gun-barrels became practical.(Durdik 1985 p14). The widespread use of firearms as weapons for large groups of footsoldiers followed, and the resulting re-organisation of army structures and battlefield relations swept aside the remnants of feudal military organisation.

But aside from its revolutionary battlefield application, the firearms industry was one of the first sectors of feudal market production to undergo elemental capital market rationalisation, for by the fifteenth century, the city councils and the feudal nobles of Europe had, through the growth of a chartered burgher middle class , developed a financial means with which to initiate and support the complicated and expensive business of manufacturing arms.(Durdik 1985 p14, Marx, Engels 1977 p36)

The medieval cities of the fourteenth and fifteenth centuries were to provide the appropriate circumstances for the development of productive forces in general, and the arms industry in particular through the growing importance of free trade. As focal points for trans-European trade, the increase in means of exchange and in commodities available resulted in giving to the nascent arms industry the revolutionary element of capital market competition and labour organisation.(Durdik 1985 p14, Marx, Engels 1977 p36)

Firearms and cannon were consequently constructed on a contractual basis , and the constructors were paid a fixed wage to deliver a certain weight in metal in the shape of the finished product.(Durdik 1985 p14). As a pioneering industry for impending capital structures of wage/labour alienation, the production of firearms required a high degree of specialisation.(Durdik 1985 p14, Marx, Engels p42). The new manufacturing system, a forerunner of the factory system, was controlled by a new manufacturing middle class and took the place of trade guild practices. The previous division of labour between the different metal working guilds involved in arms manufacture, such as the blacksmiths, the bell founders guild, and the clockmakers guild, vanished in the face of division of labour in each single arms workshop. (Durdik 1985 p14, Marx, Engels 1977 p36)

SUMMARY AND CONCLUSION.
THE END OF THE FEUDAL ORDER.

The great and awesome epoch of plate armour came about as a direct result of the introduction of two crucial infantry weapons onto the medieval battle field. The first was a missile weapon, the longbow, the second was a staff weapon, the halberd. Originally designed to penetrate chainmail armour, they precipitated improvements in body armour design and contributed to a massive military reorganisation on the battle field.

Plate armour was an elaborate defence system designed to protect individual warriors attacking en masse by frontal cavalry charge. Subsequently, as the result of the new power of infantry over cavalry given by the new weapon designs, the defences had to adapt to the requirements of both horse and foot combat, and be flexible enough to allow effective movement by the users.

The development of plate body defences led to further evolutions in weapon-design. During its epoch, there was a proliferation of new weapon designs with specific armour cracking qualities on the battlefields of Europe. In counter- response to the new armours of the fifteenth century developed to withstand harder impacts from missiles, the arrow heads of longbow shafts were adapted to pierce inefficient plate. The success of the halberd design led to a proliferation of infantry weapon designs which similarly addressed the same requirements: the pole-axe, the glaive, the gisarme, the bill, the fighting partisan, the bardiche, the couseque, the chauvre-souris, the lochaber-axe, the jedburgh staff, all combined a spear's quality for stopping cavalry charges and an axes or hammers quality for cleaving plate armour, while also allowing an infantryman to reach a mounted opponent.

36 *Horseman's weapons panoply.*
1 European axe, early 15th Century. 2 European axe, mid 15th Century. 3 French war hammer, c. 1450. 4 Italian war hammer, 1490. 5 Persian war hammer, 1850. 6 South German mace, 1470. 7 Italian mace, 1540. 8 Milanese morning star, 1460. 9 Morning star, with grip and chain, c. 1500.

There were also direct design developments in the knights panoply of weapons. Instead of a swords cutting power, weapons with armour-cracking potential were required. Hence the development of the horseman's mace, the war hammer and the horseman's axe. Throughout the age of plate armour, body defence design dictated weapon development, as much as it was dictated by weapons design.

The introduction of gunpowder weapons which could puncture the plate armour of the fifteenth century as easily as the longbow shaft had punctured the chain mail of the thirteenth century brought an end to this form of defence. For while armour was strengthened to withstand fifteenth century bullets, it was done so at the expense of the knights mobility and speed; the "pistol-proof" armour of the sixteenth century was prohibitively heavy. (Oakeshott 1980 p209). With the resulting demise of plate armour, there followed the demise of the weapons developed to combat it. During the sixteenth and seventeenth century, almost all the armour cracking weapons disappeared. Together with the introduction of the drum onto the battle fields of Europe late in the fifteenth century, with its hypnotic, rhythmic beat, the gun was instrumental in rendering war mechanical and vastly reducing the variety of weapons on the field.

Weapon and armour design had also reflected the social divisions in feudal society and its artificial class-dominated outlook on how wars were fought. The introduction of new weapon designs like the longbow and the halberd helped to undermine this view of social order by giving common people a decisive influence in the outcome of battles. War had been ennobled by the medieval aristocracy because it was the preserve of their social class, and was one of the few functions which justified the decadence and exalted nature of their position in society.

In practical terms, since the inception of the feudal order in the days of Charlemagne, war for the medieval aristocracy was inextricably linked to horse, armour, and lance. The way they fought it, through concepts of chivalry, was part of the sublimating element that justified it as an aristocratic preserve. The new weapon-designs were socially revolutionary in that they gave the decisive say in this nobles preserve to

peasants and burghers, people who played out their lives on foot, and whose only useful and legitimate role in feudal society was as humble and obedient labourers or artisans. Armed with halberds, pikes or longbows, they were a match in war for any force of cavalry or feudal noblesse, and had the power to decide their own destinies.

In the post-handgun Europe, in the post longbow Europe, the clear social divisions which had existed on the medieval battlefield, between aristocracy and commoner, between horseman and foot soldier had become less defined, reflecting the demise of the age-old stability of medieval thinking. All across Europe during the fifteenth and sixteenth centuries, the universal and religious ideal was yielding to national and military one.(Huizinga 1982 p96). The military spirit, which issued from the spirit of chivalry eventually supplanted it. The feudal armies gave way to standing armies which were the tools of kings since they were in no way the property of a feudal lord.(Oman 1924 p434). Feudal tenure was no longer the key to social organisation or to army recruitment, for now rulers hired armies and paid them with money.(Brooke 1987 p108). The feudal manor with its imagery of kinship, and its non-contractual personalised relations between lord and serf, was being replaced slowly by new systems whose links between people were impersonal and contractual.(Cohen 1978 p332). Now men connected with each other only when each expected private advantage from the connection. The artificiality of the feudal system was being more and more broken down by the freer use of money. Competitive elements began to mingle with the old productive order as the early growth of capitalism encroached upon and defeated the feudal institutions that would restrict them.(Cohen 1978 p293). The ideological and superstructural elements of the old order lost their authority and the sense of oppression always latent in the underclass began to become manifest. The first stones were laid on the road that was to lead to the eventual development of a middle class which would prevail over the previous ruling order.(Cohen 1978 p293)

Nietzsche believed that the essential thing in a healthy aristocracy was that " it does not feel itself to be a function of the monarchy or the commonwealth, but as their meaning and their supreme justification".(Nietzcshe 1973 p174). In feudal society each manor was

a quasi-independent entity and each lord a man to be reckoned with. But in the new order which was arising out of its ashes, the noble class were to become the utter dependents of new absolute monarchies.

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