

GIMNAZIJA NOVO MESTO



SREDNJEVEŠKO OROŽJE

MEČ

Meč je hladno orožje, lahko je dvorezen ali enorezen. Poznali so ga v vseh velikostih in oblikah.

Dvorezen meč je imel ostrino na obeh straneh in je bil sprva večji in težji, zato so ga držali v obeh rokah. Tak meč je bil dovolj močan, da je razsekal tako kovino kot tudi kosti. Tak meč so uporabljali predvsem vitezi, ko so se bojevali brez konja, saj je bil za bitke pre neroden, za spopad na konju pa preveč težak.

Zelo zgodaj so zato začeli izdelovati dvorezne lahke meče, ki so jih lahko vihteli v eni roki in ni bilo pomembno na katero stran se je le ta zasukal.

Enorezen meč je imel ostrino samo na eni strani in je bil zato uporabno orožje za bitko. Uporaben je bil tako na konju kot peš saj je bil lahek in so ga lahko uporabljali le z eno roko. Eno rezen meč so večinoma uporabljali Škoti, Germani, Irci in Kelti.

V srednjem veku so poleg eno in dvoreznega poznali še dva glavna tipa mečev; Espado in Mandoblo.

Espada je bil lahek meč, ki se je držal v eni roki. Uporabljali so ga jezdec skupaj s ščitom ali katerim drugim orožjem.

Mandoblo so uporabljali pešaki. Bil je zelo težak meč zato so ga držali v obeh rokah, bil pa je tudi daljši od Espade.

Posebno obliko mečev so poznali tudi tako imenovani 'gusarji'. Ti meči so imeli enorezna zavita rezila in okrašene ščitnike za roke.

BODALO

Bodala so bila narejena iz železa ali jekla, bila so zelo tanka ampak tudi zelo ostra. Bila so najmanjše orožje, ki ga je uporabljal vojščak. Vitezi sami niso uporabljali bodal do štirinajstega stoletja. Bodalo je bilo neke vrste rezervni meč, če je bil prvi meč izbit iz vitezovih rok.

Podobna orožja so imeli tudi povsod po svetu. V Afriki so imeli metalne nože, ki so se med letom vrteli in so tako povzročili veliko škode, ne glede kako so prileteli v tarčo. Zelo popularno orožje je bila tigrova šapa. Orožje je imelo štiri zakrivljena rezila, ki so se držala v roki. Tigrova šapa je bila učinkovito in smrtonosno orožje za borbo od blizu.

LOK

Veliki lok je bil izrezljan iz enega samega kosa lesa in je bil velik kot lokostrelec sam. Veliki loki so bili uporabljeni predvsem na grajskih zidovih za obrambo. Bili so narejeni iz tisovine ali cedre. Običajno so bili na koncih utrjeni z roženimi nastavki, na katere so pritrdili tetivo narejeno iz konjske žime ali konoplje. Vojni loki so bili zelo močni,

lokostrelci so morali potegniti tudi do 40 kg, da so ga napeli, mnogi pa so bili tudi močnejši.

PRAČA

Prača je enostavno orožje sestavljeno iz usnjenih vrvic ter odprte vrečke. V vrečko so posadili 'želod', svinčeno kroglo, ki je bila na koncu priostrena, in vrečko začeli vrteti nad glavo. V pravem trenutku so jo spustili in želod je poletel proti napadalcem. Če je želod človeka dobro zadel, je ta umrl ali pa je bil za nekaj časa onеспособljen.

FRAČA

Tudi frača spada med enostavnejša orožja. Setavljena je bila iz rogovilaste palice ter vrvi. Na vrvi je bil usnjen krožec v katerega so posadili 'želod'. Želod so izstrelili s pomočjo zvijanja palic pri raztezanju vrvi.

SAMOSTREL

Samostreli so bili narejeni iz lesa in železa. Tetiva je bila sestavljena iz dveh prepletajočih se vrvi, zaradi tega jo je bilo zelo težko napeti. Ko je bil samostrel napet, je bila tetiva zataknjena za nekakšno kljukico, ki se je umaknila ko je strelec pritisnil na sprožilec. Samostrel ni streljal puščic, tako kot lok, ampak je izstreljeval priostrene palice, ki so bile oblikovane kot rakete.

Samostrele so uporabljali za obrambo gradu in lov, saj so imeli pri tem dovolj časa za napenjanje samostrela. Na bojišču pa so se uporabljali navadni loki, saj so iz njih lahko izstrelili mnogo več puščic kot iz samostrela.

OSTALA OROŽJA

KATAPULT

Katapult je premično orožje, ki izstreljuje skale. Sestavljen je iz žlice in uteži. Uteži so sprožile žlico, ki je bila napolnjena z skalami. Uporabljal se je za obstreljevanje gradov.

VOJNI OVEN

Vojni oven je uničujoče orožje, ki je podiralo grajske zidove in odpiral vrata. Narejen je iz enega ali več kosov lesa. Na sprednjem koncu je bil oblikovan kot ovnova glava ali pa samo okovan z železom. Ovna so nosili vojaki.

BALISTA

Balista je podobna ogromnemu samostrelu, ki je izstreljevala velikanske puščice in kopija.

BOJNA SEKIRA

Bojna sekira je bila popularna predvsem pri Vikingih. Bila je nasajena na dolgih ročajih in je bila najsmrtonosnejše orožje v bitkah.

BOJNO KLADIVO

Bojno kladivo so večinoma uporabljali Vikingi. Njegov namen je bil onеспособiti čim več vojakov. Bilo je zelo močno orožje saj je lahko ubilo tudi vojščake v popolnem oklepu.

KOPJE

Kopje so uporabljali predvsem vitezi. Narejena so bila iz zelo dolgega držala, iz lesa, in konice, ki je bila narejen iz železa.

BOLA

Bola je bila sestavljena iz vrvic in krogel s konicami na vsakem koncu. Krogli sta lahko dosegli veliko hitrost, če so ju vrteli in sta lahko povzročila močan udarec.

KIJ

Kij je imel železno štiriperesno glavo. Uporabljali so ga predvsem pešaki, saj je ob pravilni uporabi lomil tako ščite kot tudi kosti.

HELEBARDA

Helebarda je bila mešanica med bojno sekiro in sulico. Na zadnji strani sekire je nazaj zavita kljuka, s katero so lahko zabodli nasprotnika če so ga zgrešili s prvim sunkom.

BUZDOVAN

Buzdovan je bil narejen iz lesenega držala in koničastih krogel, ki so bile pritrjene na kratki verigi. Krogel so zaradi vrtenja dobile veliko moč in so lahko preklale ščit.

STRELNO OROŽJE

ČASOVNI PREGLED:

1044

Na Kitajskem so odkrili formulo za smodnik.

1268

Prva omemba smodnika v Evropi

1284

Prvi zapis uporabe pištol v mestu Froli, Italija

1326

Florentinski koncil je ustanovil manufakture za izdelovanje železnih topov in krogel

1338

Francozi so izumili orožje, ki je izstreljevalo železne puščice.

1339

Francozi so uporabili top

1345

Angleški kralj Edvard III je imel 100 topov v londonskem Stolpu

1378

Prva omemba topa uporabljenega na Balkanu, 13.8.1378

Pri obrambi mesta Kotor so s tremi bombardoni streljali na Beneško ladjevje

1389

Otomanski Turki poročajo o uporabi topa v 'Prvi' bitki za Kosovo

1449

Slavni velikanski top je bil zgrajen za Filipa Dobrega, vojvoda Burgundije.
Bil je dolg 50 metrov.

Strelno orožje se deli na artilerijo in ročno orožje.

ARTILERIJA

Artilerija se deli na direktno in indirektno. Indirektna je izstreljevala izstrelke v loku in ni nujno zadela cilja. Direktna je izstreljevala krogle naravnost v tarčo in je večkrat zadela. Prvi izstrelki so bile železne puščice in kroglice. Izstreljevali so jih iz pištol, ki so bile podobne vazam. Tako pištolo so držali pod roko in istreljevali puščice.

Iz takih pištol so se razvili bombardoni. Bombardoni so izstreljevali večje krogle iz železa ali kamna. Bili so pritrjeni na lesene palice, ki so jih zapičili v tla in z njih naravnavali smer in dolžino izstrelka. Bombardi niso bili več oblikovani kot vaze ampak kot vedra.

Iz bombardov so se razvili topovi kot jih poznamo danes, dolgo, ravni in dokaj natančni. Topovi na grajskih obzidjih so bili zaščiteni z železnimi ploščami, da ga ne bi zadele nasprotnikove krogle, ker bi lahko eksplodiral.

ROČNO OROŽJE

Ročno orožje se je razvilo v poznem 15. stoletju. Sprva so bili to zelo majhni topovi na dolgih lesenih palicah. S časom so palice dobivale naslonjala, tako je lahko strelec naslonil pištolo na ramo medtem ko je streljal. Te pištole so začeli uporabljati podobno kot samostrele, ki so jih počasi izpodrinile.

TURNIR

Turnirji so se začeli v Franciji v 11. stoletju. Bili so javna tekmovanja poguma in spretnosti. Ponavadi so bili prirejeni v zabavo plemstvu.

Borili so se na zaprtem bojišču. Mnogo vitezev in kmetov je umrlo med turnirjem.

Turnir je bil srednjeveški šport, pri katerem sta se dva jezdeca zapodila drug proti drugemu in poizkušala drug drugega zbiti s konja z ostrim lesenim kopjem. Ko je nekdo padel s konja, je podaril konja in opremo zmagovalcu ali pa se je boril na tleh z mečem in ščitom. Jezdeca je bilo zelo težko zbiti iz sedla saj je bil zadnji del sedla visok tudi do pol metra. Sam turnir je trajal dneve, saj se je hotel vsak vitez pomeriti s vsakim.

Drugi del turnirja je bil skupinski napad. Vitezi so bili razdeljeni v dve skupine, vsaka je imela na hrbtih pritrjene zastavice z svojo barvo. Zmagala je tista ekipa, ki je z lesenimi noži odstranila nasprotnikom zastavice s hrbtov.

Cerkev je hotela prepovedati turnirje, zaradi števila umrlih na vsakem turnirju, vendar ni uspela. Angleški kralj Rihard I. je leta 1194 izdal zakon, po katerem je moral vsak vitez plačati za nastop na turnirju in tujim vitezom je bilo prepovedano tekmovati. S tem je obogatil državno blagajno in zmanjšal število udeležancev na turnirji in stem tudi smrtne žrtve.

Kmalu po tem so začeli uporabljati kopja z obloženimi konicami ali kopja ki so se zlomila ob močnem stiku z oklepom.

Turnirji so postali največji dogodek leta. Trgovci so prodajali svoje stvari, ob večerih so imeli zabave, dame so podarjale svojemu najljubšemu vitezcu šal ali rokavico in ga s tem spodbujale, da zmaga, trubadurji so opevali slavo vitezov, ...

VITEZI

Viteški oklep se je skozi stoletja zelo spreminjal.

Na začetku dvanajstega stoletja je bil sestavljen iz nekaj verig povezanih skupaj, ki so sestavljale ogromen oklep. Tak oklep so delali do pet let in so bili zelo dragi. Ko je bil končan, je tehtal od 15 do 20 kg. Tak oklep je v bitki sicer ščitil pred puščicami, je bil pa neuporaben proti mečem in udarcem s kiji. Tako so se odločili da naredijo oklep iz enega dela, ki bo prekrival le najpomembnejše dele telesa.

Čelade so bile zelo različne, od takšnih ki niso pokrivalo obraza do takih ki so zaščitile celotno glavo z vratom.

Konji vitezov so tudi morali imeti oklep. Pokrival jim je glavo in vrat.

Oproda je potreboval celo uro, da je oblekel viteza v celoten oklep.

OPREMA:

usnjena majica

verižna srajca

prsni in hrbtni oklep

ščitniki za roke

ščitniki za noge

železni škornji

čelada

pas

Vitezi so morali spoštovati cel kup pravil. Primer:

- v bližini žensk se je moral lepo obnašati
- moral je držati besedo ne glede na posledice
- če je bil zajet v bitki, ni smel poskušati pobegniti
- usmiljen do sovražnikov
 - o ni smel pustiti tujega viteza umreti na bojišču

STOPNJE VITEŠTVA

PAŽ

Paž je postal vsak moški potomec viteza. Ko je dopolnil 6 ali 7 let, je bil poslan v bližnji grad, da bi se izučil za viteza. Kot paž je pomagal svojemu gospodu pri oblačenju in nadevanju oklepa.

Uril se z igrami kot so rokoborba, mečevanje z lesenimi meči in majhnimi okroglimi ščiti in vaja s sulico na deblu, ki sta ga dva druga paža valila.

Paž se ni nikoli naučil brati ali pisati, ker so to imeli za ne viteško. Dvorne dame so jih naučile kako naj se vedejo pri mizi. Versko izobrazbo je dobil od dvorskega kaplana.

Paž je imel privilegij in dolžnost, da je bil zmeraj s svojim gospodarjem. Ta ga je naučil loviti. Paž je moral paziti na gospodarjevo opremo, da ni zarjavela. Naučili so ga, da je bil hiter, prilagodljiv in občudovanja vreden.

OPRODA

Če se je paž izkazal za zaupanje vrednega je s štirinajstimi postal oproda. Oproda je vitezov osebni strežaj. V bitki bi oproda prinesel vitezcu zamenjavo za poškodovano ali izgubljeno orožje. Moral se je privaditi na težak oklep, saj ga je uporabljal v vadbi s pravim orožjem proti pravim vitezom. Oproda se je naučil jezdit vojnega konja kljub temu, da je imel roko, s katero je vihtel orožje, prosto. Oprode so nosili meče in ščite, ki so dokazovali kako visoko so se povzpeli.

Učili so jih naj ne ubijajo veliko vitezov, ampak jih zadržijo za odkupnino. Ko se je naučil vsega so ga povzdignili v viteza.

Vendar se je moral pred tem zelo pripraviti.

Moral je moliti en dan in eno noč, brez hrane in pijače ter spanca. Zjutraj se je okopal, nato si je nadel oklep s pomočjo paža. Nad oklep mu je drugi oproda nadel belo tuniko, ki je bila simbol miru. Gospodar bi ga nato povzdignil v viteza, in mu dal meč, sulico in zlate ostroge.

VITEZ

Ko je postal vitez je lahko odšel kamor koli, lahko se je spopadal z ostalimi vitezi ali pa pomagal gradovom v težavah.

Vitez je bil vojščak na konju, ki je služil svojemu fevdalcu.

Tak vojščak je imel veliko prednost, saj je lahko uporabil konjevo hitrost in moč in poteptal svoje sovražnike, prav tako je lahko uporabil kopje in z njim poškodoval sovražnike ter hkrati ostal izven dosega njihovega orožja. Jezdec je bil zelo pomemben pri razbijanju pešaških formacij.

Vihteti kopje ali meč na dirjajočem konju je bila veščina, ki je potrebovala vajo in tudi vajo skupaj z ostalimi vitezi. Fevdalec je zaposlil viteze, jim priskerbel opremo in čas za vadbo, v zameno so mu služili kot vazali. To je pomenilo, da so morali služiti v vojski, varovati grad, mu dajati finančno pomoč, se obnašati kot posredniki sporočil in ambasadorji.

NAPAD NA GRAD

Kamnite gradove so začeli graditi v začetku 9. stoletja. Za vezivo med kamni so uporabili cement, tako so bili zidovi lahko debeli tudi do 10 metrov. Grad sam je bil zgrajen za obrambo.

Okoli njega je tekel obrambni jarek v katerem je velikokrat bila voda. Do samega gradu je preko jarka vodila ena sama pot po dvignjenih vratih do notranjih železnih vrat nad katerimi je bila odprtina za izlivanje vrelega olja in svinca ali metanje kamenja. Okoli notranjega dvorišča se je dvigovalo obzidje. Na obzidju so bili stolpi, v katerih je spala straža. Dvignjeni deli obzidja so imenovani prsobrani in so varovali strelce med streljanjem čez obzidje. Med prsobrani so bile strelne line skozi katere so streljali, brez da bi se izpostavili. Na notranjem dvorišču je bil vodnjak in glavni stražni stolp pod katerim so bile grajske ječe. Na najbolj odročno stran obzidja se je naslanjal dvorec in poslopja za služničad.

Ker so bili gradovi največkrat grajeni na hribih so bili zelo težko osvojljivi.

Obzidje okoli gradu je bilo dvojno. Če so napadalci prišli skozi zunanje obzidje so se znašli pred drugim ki je bil obložen z jeklenimi ploščami in je imel luknje v zidu. Skozi te luknje so izlivali lepljivo tekočino imenovano Grški ogenj, ki se je hitro vnel in ubil napadalce. Okrogli zidovi so onemogočali direkten napad na posamezni del obzidja. Napadalci so preplezali obzidja s pomočjo lestev in vzpenjalnimi stolpi. Obzidja sama so skozi leta gradili debelejša in višja, tako da je bilo nemogoče priti skozenj. Zato so napadalci samo obkolili in oblegali grad, s tem so prekinili pritok hrane in ko je le te zmanjkalo, se je moral grad predati.

Grad se je branil z topovi in balistami, katapulti, samostreli in loki. Včasih so zažgali konice puščic in s tem povzročili večjo škodo. Če le niso imeli možnosti za zmago so si s konjem utrli pot na prostost in pobegnili.

VIRI

OKSFORD'S ENCEKLOPEDIA; Sally Wehmeier

ŽIVLJENJE V SREDNJEM VEKU; Mali vedež; Cankarjeva založba

ANGLEŠKO-SLOVENSKI SLIKOVNI SLOVAR; Oxford – Duden –
Cankarjeva založba

INTERNET: <http://www.medieval-weaponry.com>

KAZALO

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Dodane so še strani iz katerih sem povzela snov za referat

A knight's sword was his most important weapon. That is probably why blacksmiths invented the two-handed sword. A two-handed sword could cut through mail and bone! Some swords had serrated edges to cut off the pikes of halberd axes. Swords were made of light iron. Swords were commonly used by foot soldiers. Some swords some times had their coat of arms imprinted on the blade. Some swords had gold or velvet handles. Some swords were so fancy they were used in rituals or ceremonies. Usually swords were only two pounds.

Some daggers were hidden in walking sticks. Daggers were usually made of steel or iron. Some daggers were thin but sharp.

Longbows were carved from a single piece of wood and as big as the archer. Longbows were used mostly in castle walls. Longbows required excellent skill. Crossbows were stronger than guns until the 1800's. Crossbows were made of wood and iron. Crossbow strings were made of twisted cord. Crossbows were hard to load and easy to shoot.

The Middle Ages were not just in Europe it was everywhere. The different the country the different the weapon. Like the African throwing knife it twirled when it was thrown so no matter which side it hit it was bound to do a lot of damage. A tiger claw is a very gruesome remake of a tiger's claw. A wrist knife had a protective cover for easy handling.

A catapult was a trajectory weapon that flings rocks. A battering ram was a destructive weapon that tore down castle walls, and had to be carried by many men. A trebuchet was a device similar to the catapult. A ballista was like a giant crossbow that shot giant arrows.

Guns invented in the late 1400's were a new generation in fighting. Cannons also evolved during the early 1500's. Guns were not very accurate, but very expensive. Weapons were essential to the king's land, and to people's lives.

The Steps of Knighthood

In the medieval times, many knights rode out to do battle. They made sieges on other castles, headlong charges into bloody battles, and defended their own castles against sieges. But knights weren't always so good at fighting. Knights had to pass long, hard, half boring hours of practice, practice, practice. First they had to be a page. If they did good they became a squire. If squires were worthy they were dubbed and became a knights

PAGES

When a boy born by a knight turns six or seven he is sent from his home to a near by castle. There he is trained by the lord of the castle to become a knight. He is a page. A page helps his lord dress and put on armor. He plays many training games that include wrestling, piggy-back wrestling, sword practice with blunt wooden swords and tiny round

shields called bucklers, and lance practice on a rolling log pulled by two other pages toward a quintain (A quintain is a target on one end of a swinging board. On the other end is a bag full of sand. When the lance hits the target the rider has to duck or the bag of sand will strike him on the back or the head.). A page rarely ever learned how to read or write because it wasn't thought to be very knightly. The ladies of the manor taught him table manners. (A manor is a castle.) The page waited on his lord and lady. It was his duty and privilege to accompany his lord and lady at all times. He learned how to hunt and hawk. When his lord's armor was rusty, the page rolled the armor in a barrel of sand so that the rust was gone. He was taught to be quick, graceful, and flexible. He received religious training from the chaplain. He sometimes received training-in-arms from the squires.

SQUIRES

If the page showed promise, then at the age of fourteen, he became a squire. A squire is a Knight's personal servant. In battle, a squire would bring his knight replacements of lances, swords, horses, or any item lost or damaged in battle. The squire had to become accustomed to heavy armor. A squire played games with real weapons against real knights! The squire learned to ride his war horse while keeping his weapon arm free. While he was a squire, he was allowed to carry a sword and a shield, which showed what rank he had achieved. The squire was taught not to kill many knights. Most knights held other knights for ransom. If he got through all of that, he was knighted or "dubbed". Before a squire was dubbed, he did lots of things in preparation. First, he prayed all night. He prayed without sleeping or eating. When morning came, he would take a nice, warm bath. Then he put on a special padded vest and hood so that his armor did not hurt him. Then he would have a page help him put on chain mail armor or plate armor. Then the almost knighted squire would put on a white tunic. The tunic was white because white is the color of peace. The tunic was so that his armor did not rust in the rain and sun. He knelt before his lord. Then his lord would slap him with his hand or the flat of the sword. As his lord was doing that, his lord would say, "I dub thee Sir Knight." Then the new knight would receive his sword, lance, and golden spurs. Each of the weapons had a good meaning. The lance had a saying. It was said, "As fear of the lance drives back the unarmed, so the knight drives back the enemies of the church." As for the sword, it was said that, "The two edges of the sword show that the knight serves God and the people." Then the knight was free to roam. He usually rode off on quests of adventure. He either stopped by the road and challenged any knight that passed by or he did battle for a damsel in need.

Knights existed between the year 800 a.d. and the year 1450 a.d. Knights were a great means of fighting until guns and cannons replaced them. Now knights have become almost a legend. Today we see knights in movies or books as a group of strong men who killed dragons and rescued princesses. If you want to learn more about what knights actually did, go to a library near you and you may be surprised to find a large selection of non-fiction books about knights that are more exciting than you ever dreamed!

Cling, Clang, that's the sound you hear when a knight comes, with his shining armor and big mace. Oh, it's so hard to be a knight. You have to follow special laws everyday, and sometimes for days, months, even years before you come home. That's the life of a Medieval knight.

Knight's armor went through many changes. In the 12th century, the knights used an armor called mail. Mail was very little chains linked together to make one big suit of armor. These suits took on average about five years to make. These suits also took a lot of money to make. When all this work was done it weighed about twenty to thirty pounds and that was only the chest, arms, and back. When they were in battle the mail guarded arrows but not good strong blows with a mace. The armorers took that in consideration and made plate armor. But they only put plate armor in the sensitive parts that could not take as many hard blows.

Those suits lasted until the 15th century and then they started to make full body suits out of plate armor. Helmets varied some covered the face and some did not. Some had decorations on them such as eagles beaks. Horses had to wear armor too. They wore it around their neck and head. Knights had to wear padded doublet and tied with satin and strips around their knees to keep it from rubbing. It took a squire an hour to put on a suit of armor.

A knight had to follow special laws and this was called chivalry. These laws were difficult to follow because there was a lot of them. they had to be well behaved near women. A knight had to keep his word no matter what the case. Even in battle, they had rules to follow. One was if they got captured, they could not try to escape. Another rule they had to follow is that they had to be generous to his defeated enemies. That means they could not leave the other knight to die in the field. As you can see, it was very hard to be a knight because of the laws and the heavy armor

Clang! Clang! The sound of lances crashing into the knights armor. These were the sounds that filled the air with excitement during the Middle Ages.

Medieval warriors used many kinds of weapons. For example, a knights favorite weapon was his sword. There were many kinds of swords, such as the great sword. Great swords were two handed swords. They were larger versions of the ordinary sword. They were swung with both hands to deliver a powerful blow. Large swords began to become popular in the 13th century. A knight would hang a sword in his saddle in addition to his regular sword.

The shining sword was also a sword used during the 1460's. This sword has a copper gilt crossguard. This was probably made for a rich knight.

Another weapon a knight or a Viking would use was a battle ax. This ax was developed in northern Europe. It was especially popular with the Vikings. It was used by a well-trained infantry. It could prove lethal to horseman especially when mounted on a yard long haft (handle) and swung with both hands .

A more widely used ax was the pole ax. This weapon was very popular in battle and foot combat. It was used to strike the opponents head (the word "pole" meant head) and the solid hammer-head at the back could knock out a man in armor. There was another kind of ax called the short ax. Knights sometimes used two-handed axes, but the smaller, single-handed variety was easier to use on horseback.

One of the smallest weapons a warrior used was a dagger. Knights did not use daggers very much until the 14th century. Daggers were used as a back up sword; when the knights first sword was knocked out of his hand.

Knights used a weapon called a lance. Lances were long and came in many sizes. They were made of wood and were painted. Maces were also another wooden weapon used by knights. They were shaped like clubs with spikes stuck into them.

Archers used bow and arrows. One kind of bow and arrow is the longbow. This type of bow was usually made of stave or yew wood about the height of the archer himself. It was usually fitted with horn nocks at the top to take the hemp string. War bows probably needed a pull of at least 80lb. , and many have been far more powerful.

Crossbows were another kind of bow. They were introduced in the 11th century, they were made of wood or horn. After shooting, the string was drawn back by the archer placing his foot in the stirrup. He then attached the string to a hook in his belt and straightened his back until the string slipped over the retaining catch on the crossbar of the weapon. The bow was usually shot by means of some kind of trigger.

Weapons were critical for kingdoms. They were extremely important for warriors to protect and conquer other kingdoms.

Hoofbeats thunder on the hard dirt. The big heavy armor clacks as one knight fights another. The king watches with interest as two lances smash together at full force. One man falls to the hard dirt ground. That's what happens at the scene of a joust.

Tournaments started in France in the 11th century. They were public contests of courage and skill. Usually they were held to entertain royalty. They fought on an enclosed field. Many knights died. Many peasants were also killed when the horses went out of control.

The joust was a type of medieval sport which consisted of two horses charging at each other from opposite directions with a rider holding a sharp lance. They were only separated by a low wooden fence. Once somebody fell off they are usually hurt or killed. Knights would either forfeit their horse and armor or if able, they would fight on ground with a sword and shield. The object of the joust was to knock your opponent off their horse, which was pretty hard to do because the back of the saddle was about 1 foot tall. If the knight ever fell, his squire, {which are knights in training}, would make sure they were all right. If the knight splintered 3 lances it was either a draw or his choice was to fight on the ground. The joust could last for days because all knights would compete in it.

The armor was hot and stuffy. It weighed about 50 pounds. Some gloves were molded together and could not move. The horses the knights used were stallions. They are strong and nimble. The horses had to wear armor too. The ladies would give her favorite knight something like a scarf or a glove to show that he was their "special" knight.

There was another kind of tournament called the melee. The melee consists of two teams with flags on their backs using clubs and blunt swords. The object was to knock the flags off. One of the less popular tournaments was on water. Where one knight had a lance and tried to knock his opponent off his boat while other people rowed forward. They also had martial arts and kickboxing. Lots of knights made money from tournaments.

Tournaments were the highlight of castle life. A herald or knight issue a challenge. People made wooden stands decorated with pennants for the royalty. Small tents were made for the peasants. People were hired to keep track of the winners. Anyone was allowed to enter if they had a suit of armor, a horse , and a sword and shield.

Tournaments ended with the final decay of feudalism and chivalry in the 17th century. They stopped combats and made them state pageants. The church tried to stop tournaments because people often died. The church failed. The development of firearms and their widespread use helped stop the jousting tournaments. Today in our time at some festivals hold mock battles of the joust. Like the Renaissance festival in Tempe

..... As you look out the wind hole of the giant keep all you see is the moat and the giant meadows! You see the horses and knights charging towards the castle. Panic flies all over your body. You tell your servants to run and warn the defenders to prepare for a siege.

BOOOM! The castle wall starts collapsing!

Stone castles first existed in the 9th century. The castle was held together with mortar. The mortar held the bricks of the castle together. Walls could be as thick as thirty feet! Passages under ground were also helpful to defenders. They have many parts to them. They are the Keep, the Sentry Walk, the moat, the Inner and Outer Bailey, the Inner and Outer gatehouse, the Curtain and the Drawbridge. They are often built on high mountains surrounded by a moat. This makes the castle harder to attack. A drawbridge lays across the moat and can be raised when under attack. Comfort is not what castles were designed for. A castle was built to be a fort and was designed to withstand a siege. The castle also has an Inner and Outer wall. In case the enemy got through the Outer wall the Inner wall was also protective to the king and his servants. The Outer wall is covered in merlons which are steel plates so it is harder to get through the wall. The holes in the wall are made for defenders to fire arrows at the enemy. There are also holes in the ceiling and floor. This allows castle inmates to look down and see if the intruder is friendly or not. If he does not look friendly they will pour a sticky substance called Greek Fire which can easily burn through flesh and kill them. These are called murder holes. A crusader castle has a second and third wall for defense. That is the design of a castle.

A castle has many defenses. One of them is that the walls had small slits in them. They were called arrow loops. These allowed the defenders to shoot arrows out at the enemy. They stood on ledges or galleries. If one defender died the rest did not care! They just went on with the battle. Round walls made each part of the castle harder to hit. Outer walls gradually got thicker and was harder to get through and harder to get over. Doors and gates had thick iron plates on them and needed more protection because they were wooden. A series of walls is farther from the moat so it would be even harder for the enemy. The castle could not get fresh food under attack. When their supplies ran out they would have to surrender. So the defenders had to get rid of the enemy before the supplies were gone.

A castle could attack in many ways. Giant crossbows and cannons were some of the main sources of attack for a castle. They also used catapults, crossbows, and bow and arrows. They started lighting arrows on fire for more destruction. If they were attacking a castle and were losing badly the horse helped them get out fast. Soldiers or Knights used ladders or scaling towers to climb over walls. They also used a battering ram to knock down walls. Castles were very important in the Middle Ages.

Crossbows were brought to England by the Normans in 1066 and soon became an important weapon in history. They were used for warfare and for hunting and widely employed in England through the time of Elizabeth. Large crossbows were more powerful than any longbow and unlike their lighter counterparts that were used in the field by armour clad soldiers, attack and defense of fortified places such as castles. We often these tho exceptional reproductions of Castle Defese Crossbows that are made in Italy and although we consider them wonderful historical display pieces, they have functioning parts. Each comes complete with its own "bolt" (missile shaped arrow). Get these crossbows now because "Bigger is Better" in defense of a Castle! Measurements are from end of stock to stirrup

The following are some weapons used by the knights of *Medieval Times*:

- **Sword**
The two types of swords used are the Espada and the Mandoble. The Espada is a one-handed short sword used on horseback or in combination with a shield or other weapon. The Mandoble is used by knights on foot and is a two-handed sword that is longer and heavier than the Espada.
- **Lance**
The jousting knight uses a lance to knock his opponent from the horse. The lance is second only to the sword as a knight's weapon, and is used in battle or tournaments.
- **Bola**
The bola consists of a wooden handle with a spiked ball on a short chain. It is used from horseback or on foot. The ball can reach high speeds when swung and can deliver a forceful blow.
- **Mace**
This is a heavy weapon that can deliver crushing blows. It consists of a wooden handle with a quatrefoil-shaped head.
- **Alabarda**
This is a a cross between a battle-axe and a spear. There is a point on the back of the weapon so if the enemy is missed on the forward stroke, he can be stabbed with a backward thrust

knight is essentially a mounted warrior in the service of his liege-lord.

The mounted warrior had a great advantage on the battlefield. Using the speed and momentum of a charge, the [horse](#) could trample his rider's enemies; the rider could use the long [lance](#) to injure his foes while he remained out of reach of their weapons. Then, with all speed, the knight could ride off, only to return for another deadly attack. This technique had the most devastating effect when the cavalry worked together in formation. The horse-mounted soldier was therefore of great significance to an army's leaders; thus the root of the French word for knight, *chevalier*, is the French word for horse, *cheval*.

The ability to wield a sword or lance from horseback was a special skill that took practice and wherewithal, and it also took practice with comrades to learn to work together as a team.

A lord would employ knights and give them the time and equipment they needed to practice; in return, they served their lord as vassals. The duties of a vassal could include not only fighting in his lord's army, but guarding his [castle](#), giving him financial aid, acting as his messenger or ambassador, and serving on his council. The knight was under his lord's protection, both legally and militarily.

It was the relationship between himself and his lord that defined the knight's life. The lord's position gave him considerable control over the knight's life, career, and future, including the final say in whom the knight could marry and the disposition of his estate after his death. The lord technically owned the land used by the knight to raise revenues, and while the property usually remained in the knight's family for generations, it was the lord's prerogative to revoke a knight's right to the land and give it to someone else.

A lord might also be a knight in the service of a higher authority, who in turn would serve his liege, all the way up to the king. This chain of service was the basis of feudalism, and its importance is revealed in the Saxon word for servant, *cniht*, which gives us our English *knight*.

The medieval knight was not the first man ever to hold special status for his job as a horse-mounted soldier. In Ancient Rome, the *equites* (mounted officers) held a special social position. But the Roman political structure differed markedly from that of medieval Europe. It is [feudalism](#) that gave the knight his unique status. The history of feudalism and the knight goes back to late antiquity.

After the Roman Empire fell, western Europe had to adapt to new circumstances. Kingdoms struggled to survive, constantly faced by the threat of invasion by nomadic tribes and aggressive neighbors, including [Magyars](#) and [Vikings](#).

The European leaders formed armies consisting of ordinary men -- peasants and tenant farmers -- who were used to standing up for their homes and community, and when they fought other foot soldiers they often held their own.

But the invaders brought a new element of warfare for which they could not cope: The Mounted Warrior.

To fight fire with fire, it was necessary for the western European armies to create cavalries of their own. But an ordinary citizen could not afford the maintenance and care of a trained war-horse, let alone its purchase. Furthermore, horsemanship skills needed practice, and the average citizen had no time for that, because he had to feed his family. This usually involved working the land, which not only put food on the tenant farmer's table but put money in his landlord's pocket.

It was the Roman practice of *commendation* that brought on the birth of knighthood. A Roman soldier would attach himself to a superior officer, promising military service in return for some kind of support, usually a grant of land known as a benefice. European leaders such as [Charlemagne](#) adopted this practice; they would grant parcels of land (complete with serfs) to their best warriors.

In return, each warrior (who was now a lord himself) would use the income from his land to equip himself with a horse and weapons. And, now that he had the leisure time of a land-owner, he would practice horsemanship and horse weaponry so that he might better serve his liege-lord.

The land grants did not end with one distribution -- each warrior-cum-lord would divide up his land and grant parcels of it to retainers, who would then follow the same procedure. The land would be divided and re-divided until what was left was the minimum required amount of land to support a knight. This was usually 12 hides (about 1500 acres), but it depended on the quality of the specific land and how much food or other natural resources it could produce. It cost 30 marks a year to support a knight.

The knight of Europe therefore had his origins in military and economic need. His role was as a warrior, and in some cases he was little more than a thug rewarded for his viciousness. But if a knight was to succeed, he had to take his role in the military seriously. As time went on, success required more than brawn: it required loyalty to his liege-lord in society as well as strategy and ingenuity on the battlefield.

One of the definitive images of the days of chivalry is that of knights in shining armor competing at a grand tourney while gorgeously clad ladies cheered them on. This tradition holds such a cherished place in our memories that its origins seem lost in the mists of time.

Yet the origins of the tournament are not really difficult to trace. It all began as... fighter practice.

The significant advantage of a mounted combat force in any army stemmed from its ability to work together. This took practice. The tournament was a way for warriors to practice working together and at the same time use their other mounted combat skills. It was also a proving-ground for knights looking for service.

An uncontrolled melee, the early tournament was fought over miles of countryside, pitting one group of fighters against another. Although a *recess* or *recet* was available wherein knights could take refuge from the fray, there were no other safeguards.

Combatants wore the armor they always wore in battle and used the same weapons they used to kill their foes. It mattered not that the men they fought were their countrymen; in the tourney, they were the enemy as well.

Fortunes were won and lost at the tournament. A defeated knight might have to pay to the victor a large ransom, which usually consisted of his armor, weapons and horse--the things that were of the utmost value to a knight. Deaths were not uncommon, especially at a time when an infection could so easily kill.

Careers were won and lost, as well. A knight looking for service could be spotted by a lord looking for soldiers. Knights already in service would still prove themselves at the tournament every time they practiced, and if they were defeated, their place in their liege-lord's army could be diminished.

In the early tournament, Chivalry did not apply. No one held back or tried to avoid killing their opponents. There were even knights who practiced what was known as a "Count of Flanders" technique, which involved waiting until late in the combat, then joining the fray and attacking tired and worn-out fighters and thus easily winning their belongings.

The church tried to ban tournaments, threatening to refuse Christian burial to any knight killed in a tourney. This unfortunately did not deter those knights who were looking for work or addicted to the dangerous sport. English knights went to France in search of tournaments and the jobs that could be found there.

Princes and kings were also concerned about the high rate of injury and deaths. They needed healthy men to fight for them in significant battles; the loss of life (of both horses and men) was a financial and political blow. Suspicious leaders were also concerned about these gatherings, where insurrection could foment and treachery could take root.

In the last decade of the twelfth century, [King Richard I](#) of England attempted to bring tournaments under control and at the same time raise money for his military campaigns. He did this by devising a licensing system. In 1194 he issued licenses for five different locations in England. Knights had to pay a fee to participate, and foreign knights were banned. In this way Richard not only raised money but kept an eye on political maneuverings.

Safety measures gradually began to appear. The free-for-all was discouraged and a one-on-one battle was encouraged to better display a knight's horsemanship skills. This one-on-one evolved into the joust. Beginning in the thirteenth century, arms of peace were devised -- special weapons such as blunt-tipped lances and special armor (some of it designed to break apart) were used only in tournaments.

Over time, the tournament evolved into a grand spectacle. It was organized by heralds and announced to the public weeks in advance. Grand processions took place, and evening banquets were given. Ladies in finery looked on from the gallery, giving chosen knights a favor, such as a scarf, to display as they contested. Prizes were won. Minstrels cheered on the knights who employed them and entertained the crowd. Merchants sold their wares.

The tournament became a festival that no one wanted to miss.

Gunpowder weapons were the 'leading edge' of technology in the late medieval era. Gunpowder weapons took two forms: *artillery*, and *hand-held guns*. The two systems were employed tactically in sieges and battles, and in offense and defense operations. All forms of gunpowder weapons relied on chemical and metal-working advancements of the time, and their effective exploitation in warfare relied upon new thinking of the military commanders.

For some time, there appears not to have been a distinction between artillery pieces, operated by a crew, and smaller weapons capable of being operated by an individual. Even though there have been a few examples of images and even hand-held weapons found from the earliest times, the emphasis was on developing the cannon to blast holes in walls or to shatter fortress gates by what would be considered an 'artillery' role, and complementary to what non-gunpowder siege engines had been doing for centuries. Handguns were complementary to other missile weapons, mainly the crossbow. Initially, the awkwardness in firing handguns limited their use as a 'marksman's' missile weapon, but they had a role, when employed in numbers, to deliver suppressive and harassment fire.

The earliest employment of gunpowder weapons may not have been recorded, as such incidents in battle were most likely experiments. The first few reports of guns in chronicles are often questioned. Modern scholars distinguish between combustible objects being hurled from non-gunpowder machines, and the actual use of gunpowder as an explosive to propel objects from a gun. Many of the early accounts lack sufficient precision to make a reliable determination if a 'true' gunpowder weapon were being described. The earliest reliable reports of guns suggest that their use had been ongoing. Initially guns were most used in sieges, in which they did not become decisive until the late part of the Hundred Years' War. Early gunpowder weapons were awkward in open battles. They were first effectively used during the battles of The Hussite Wars (1419-34). Though they were present on many battlefields, beginning in the late fourteenth century, guns' first effective employment [distinctly contributing to the conduct of the battle] in the Hundred Years' War was at Formigny (1450). At Castillon (1453) guns were a major factor in deciding the outcome of the battle.

The use of gunpowder weapons in the Hundred Years' War did not produce a revolution in tactics, but it did spur the technological development and logistical support systems for such. In the war, guns were used along with the older non-gunpowder weapons. The introduction of gunpowder weapons was an evolutionary process that required progress in technology and in understanding of commanders (the best of whom were not the traditional knight, or noble men-at-arms, who were the main subjects of the contemporary chronicles).

c.1044

The essential ingredients of 'gunpowder' were recorded in a formula in China. Its explosive qualities had obviously been known for some time in the Sung Dynasty. Its use in Chinese firework demonstrations is certain. Though it is evident that the Chinese, and later the Arab civilizations, experimented with a wide-range of

mixtures, there is some doubt if either society used the mixture as a propellant of projectiles.

c.1268

The thirteenth-century transmission of the gunpowder formula to Western Europe has not been documented.

Roger Bacon's *Opus tretium* provided a recipe with the components of gunpowder and suggested awareness of the mixture's explosive power. He had made a cryptic reference to the mixture in an earlier document, *Epistolae de secretis operibus*, in 1249.

c.1270-80

Albertus Magnus (d.1280) left a manuscript (dated c.1270) that included the work attributed to a 'Marcus Graecus' of an earlier time. The Graecus' work was titled *Liber Igneum ad comburendos hostes* [*Book of Fires for Burning enemies*] and contained workable recipes for explosive gunpowder.

Reports, records, or evidence of guns:

1284

Records of Italian use of *sclopi* (handguns) at town of Forli is suspected to be a later insertion.

1313

Records reported that *bussen met kruyt* ('cannons with powder?'), were kept at the town of Ghent. Interpretation is questioned by some English authors.

1324

Guns were reportedly used at a siege of Metz. The report is questioned due to the chroniclers' use of the term 'serpentes', believed to be a premature convention. Nasrid Sultan, Ismail I, of Granada reportedly used gunpowder artillery to capture Huéscar in Spain. Reports of early Spanish Muslims' use of guns are questioned by some who claim the accounts are of incendiaries being launched by non-gunpowder machines and not of projectiles being propelled through a barrel by a gunpowder explosion.

1326

Council of Florence directed the manufacture of metal cannon and bullets (*pilas seu palleas ferreas et canones de metallo*). Considered by many to be the first 'indisputable' record of such items.

The image of a *pot-de-fer* gun, that shot an arrow-like bolt, was in a manuscript (by Walter de Milemete) presented to Edward III on his accession to the throne of England.

1327

English reportedly used guns ('crakys') in Scotland.

1331

Guns, *vasi e scioppi*, were used at siege of Cividale, in Friuli, Italy.

1338

French document described acquiring iron arrows and sulfur, with which to make powder to shoot the arrows.

- French used *pot-de-fer*, firing bolts with iron feathers, in a naval raid against Southampton.
- 1339 French used cannon [*pot-de-fer*] at Perigord; and at Cambrai against Edward III.
- 1340 French used *pot-de-fer* at Quesnoy in 1340.
Italian painting of this date shows handguns.
- 1341 At Lucca, there was reported use of a 'thunderer', and of iron cannon firing iron balls.
- 1342 Spanish Muslims used cannon against Casilian army at Siege of Algeciras.
- 1343 Spanish muslims used gunpowder against Alfonso XI of Castile.
- 1345 French had 24 cannon made at Cahors for the siege of Aiguillon.
Edward III had a hundred cannons at the Tower of London.
- 1346 Some accounts state that cannon was used at the battle of Crécy. Though the account is stated without qualification in many modern writings, it is disputed by several historians.
Edward III reportedly used 22 cannon his campaign in France.
- 1370 Reference to gun foundry at Augsburg.
- 1375 French employed 32 cannon and fired 100 pound stone balls during siege at Saint-Sauveur-le-Vicomte.
- 1376 Reference to gun foundry at Venice.
- 1378 First mention of cannon used in Balkan lands relates to 13 August 1378 defense of Kotor firing three bombards at Venetian warships.
- 1382 A militia from Ghent, in a defensive position approximately an hour's march from the city of Bruges, employed small cannon in routing the Bruges' militia that marched out to engage them. The 3 May encounter is called 'the battle of Beverhoudsveld'.
- 1386 Reportedly Swiss used some handguns at Battle of Sempach.
- 1389 Ottoman Turks reportedly used canon at 'First' Battle of Kossovo.
- 1399 Richard II of England reportedly took eight 'gunnes' with stands and 200 rounds of shot to Ireland.
- 1400

- Konrad Kyeser's *Bellifortis* (c.1400) contained an illustration of a gunner firing a small, culverin-like gun supported by an upright pole and a long shaft extending from its breech. The gun is being positioned by the gunner's one hand as his other hand is aligning a hot rod to the gun's touchhole.
- 1411 First known image of a Z-shapped trigger-lever 'matchlock' gun is in a manuscript of this date.
- 1419 Initial battle, near Prague, of the 'Hussite Wars' began a series of engagements (lasting until 1434) which evidenced a definite tactical scheme for the employment of guns (small artillery pieces and handguns). The Hussites' employment provided undeniable effectiveness of guns in combat when (as with the English longbow) a missile weapon was used, supported by combined arms (other disciplined infantry and cavalry) and in an offensive-defensive tactical posture.
- 1429 At the English siege of Orléans, the French gunner Jean de Montesiler demonstrated remarkable marksmanship in targeting individual enemy targets. The accounts suggest that his individual firearm may have been a matchlock equipped *coulevrin*.
- 1435 Handguns (*culverins ad manum*), supported on stands, were reported used at Rouen.
- 1442 French established artillery parks: at Dax in 1442, at Mauléon in 1449, and at Guissen in 1449.
- 1448 At the second Battle of Kossovo (17 Oct 1448), the Hungarians under Hunyadi reportedly employed German and Bohemian mercenary handgunners against the Turkish *Janissary* archers. The infantry on both sides used palisades while exchanging missile fire at an interim distance of about 91 meters. Though the far more numerous Turks won the battle, Sultan Murad II (1421-1451) was sufficiently impressed by the encounter to incorporate soon after handgunners in his Janissary.
- 1449 ***Mons Meg***, a famous 'giant' iron bombard was made for Philip the Good, duke of Burgundy. This followed the trend set by the acquisition of another giant, ***Dulle Griet***, a few years earlier.
The French artillery under the direction of Bureau brothers demonstrated striking success in sieges without use of the 'giant' bombards. The French emphasis was on a large number of regular and smaller guns [particularly longer barrel length-to-bore size ratios], and a highly organized supply and support base. There is the possibility that they were making use of the newly developed and more powerful 'corned' gunpowder.
- 1450

- French employed two culverin-type guns that forced English longbowmen to break their traditional, defensive battle formation at the battle of Formigny. The issue was not decided by guns, which the English managed to capture, but by the French heavy cavalry that attacked the English exposed from their defenses.
- 1453 French employed about 300 guns (artillery and handguns) at the battle of Castillon. This engagement was a close replica of Hussites' tactical use of guns, without the wagons, but skillfully adapting to favorable defensive terrain. The guns had largely decided the outcome by the time the French cavalry charged in. Constantinople fell to Sultan Mohammed II, who had employed a large number of 'giant', mostly cast-bronze, bombards in his siege of the city. However, the large guns' contribution to the victory is often exaggerated.
- 1454 Cannon reported to be mounted on two-wheeled gun-carriages at Rouen.
- 1470-80 Believed actual timeframe of the 'Hussite Manuscript', which explains the relatively advanced [for time era of the Hussite wars (1419-34)] images of gun-carriages in the document.
- 1474-77 The Burgundian-Swiss wars evidenced that the Charles 'the Rash', duke of Burgundy's, fascination with and promotion of artillery was not matched with a skill for its employment in combat.
- 1483 *Berner Chronicles* contains creditable images of two-wheeled gun-carriages.
- 1481-92 Ferdinand and Isabella exhibit a strong artillery arm in their conquest of Granada. Although the technological status of the Castilian-Aragonise artillery did not seem to have advanced much beyond that of the Hundred Years' War, their infantry evidenced a significant increase in use of matchlock handguns -- the *espingardas*.
- 1494 Charles VIII's French army invaded Italy with a highly developed artillery train and guns mounted on carriages with trunions.

Artillery may be roughly placed in two general categories according to tactical employment: indirect fire (throwing or lobbing) objects (projectiles) toward a target area, and directly shooting a missile at a target. Contrary to the impression given in many general histories, medium-size guns were the most effective for bombardment. Guns of great size induced a degree of psychological fear, but often failed during intense use.

Earliest gunpowder artillery shot metal arrows (bolts) [*grands carreaux*] from iron or cast bronze, vase-shaped 'guns', or *pots de fer*. Italian expression was '*vasi*'. It is suspected that a tampion, or some sort of wadding, was wrapped around the shaft of the projectile to enhance the thrusting energy of gases released by the explosion of the gunpowder. First image of these vase-configured guns was in the Milemete Manuscript of 1326 presented to Edward III of England. Some accounts suggest that such guns were the

'crakys of war' used in Edward III's 1327 campaign in Scotland. It is also speculated that these were the French 'bombards' used at Quesnoy in 1340.

Early bombards, that shot stone-hewed projectiles were fastened to wood platforms or trestles and positioned on earth mounds. Simple devices were used to make slight adjustments in elevation.

Initially the guns were shaped like buckets, wide at the open mouth and narrowed at the rear (where the gunpowder was packed) and a small hole (touchhole) was located for the insertion of a hot wire, or lit coal, to ignite the gunpowder. These very early *bombards* would in the following century be called 'mortars' to distinguish them from the longer barreled guns that are more typical of the major bombards of the fifteenth century.

Bombard was a term that could be a generic, early medieval artillery piece. However, as time passed, the term was applied to the larger cannon. As specific sizes were not standard, one could say that guns which shot projectiles larger than a human's head were generally 'bombards'.

The larger bore diameter guns usually shot stone balls and were muzzle-loaded. Some bombards were large at the mouth end, but narrowed to the rear (breech), where they might have had removable fire chambers -- making them 'breech loaders'. Excluding the few very large guns (which were usually given individual names), the following data would generally apply for the average bombards:

Crew: about a 10 to 20

Rate of fire: 2 per hour (muzzle loaded)

Projectile: up to 100 kg (about max for the average gun)

Range: 220 meters (very rough average estimate)

This is a cutaway of one of the ca. 1450 bombards kept at the Musée de l'Armée, Paris, France.

This is a rather typical configuration of bombards of the fifteenth century. They consisted of two distinct tube-like sections: a long *barrel* sections and short *powder-chamber* sections. The barrel had considerably large bore caliber size compared to that of the powder chamber.

Most of the bombards of the early fifteenth century were hammer-forged, wrought-iron pieces. Their powder chambers and barrel sections were made separately, and then the chambers were rigidly attached to the barrel. Some authors have mistakenly assumed that these were screwed together after a practice of manufacture in the very late fifteenth-century with cast-bronze guns. As many of the remaining iron bombards are too corroded to assess the difference without x-ray examination, this distinction has only been recently confirmed. The deteriorated condition of the guns also conceals the forged manufacture of many of the chambers, which otherwise have been mistakenly assumed to have been cast.

Cast bronze guns were known to be safer from explosion, and as gunpowder improved in explosive power in the latter part of the fifteenth century, more bronze guns were made,

though they were more expensive. Not many of the bronze bombards remain as they were melted down in later eras for more modern artillery, church bells, etc.

Smaller bombards, mounted on wooden sleds, provided a degree of tactical mobility before the development of suitable two-wheeled gun-carriages late in the fifteenth century.

Culverin and **veuglaire** were cannon of narrower diameter and considerably greater ratio of barrel-length to bore-diameter than that for bombards. They shot projectiles about the size of a human fist. The culverins and veuglaire type guns proved to be versatile and effective guns in the late medieval period. It became economical to use cast iron shot with them, which enhanced the guns' effectiveness.

Cannon of this design were most all breech-loaded. Beer-mug shaped chambers were pre-loaded with powder charges and then wedged tightly into the open rear of the piece. This allowed for a more rapid rate of fire than for the muzzle-loading guns. This factor, along with their more manageable size, caused culverins and veuglaire to be the first types of gunpowder pieces to be used in open-field battles.

To be effective, guns had to be placed close to walls. Gun crews had to be protected from the enemy counter missile fire (guns and arrows) and large shields were erected at the gun sites.

Removable firing chambers, in which powder was loaded, allowed for safer and more rapid firing rates. This system was more practical on the smaller bore guns and not adopted for most bombards. There is some question whether the shot was placed in the removable chambers along with the powder and wadding, or was the shot placed at the breech end of the barrel and the removable chamber loaded merely with powder and wadding.

Culverin/veuglaire type cannons were given many other names that had particular meanings to the chroniclers and operators at the time. There is no record of a systematic labeling of guns until the sixteenth century. However, the French artillery under the Bureau brothers attempted to 'standardize' the diameters of the guns to a few specific sizes, as part of their logistical measures in managing the large artillery inventories of Charles VII, and later of Louis XI. Eventually, the 'culverin' became associated with the very narrow diameter [small caliber] guns and with the smaller hand-held weapons

ribauldequin, or 'rabaud', or 'organ guns', were in use during the first part of the fifteenth century, and continued as a mostly anti-personal gun.

Handguns had developed considerably by the late fifteenth century. They began by mounting very small, culverin-like cannon on long staves (or stocks). These small guns were usually called '**cannon** or **culverin à main**'. The gunner was called a **coulevrinier**. The earliest handguns had to be supported and were fired by a hand-held lit match being brought to the touchhole. Sometimes this was done by an assistant.

During the early fifteenth century the pole became shorter and took the form of a stock that rested on the gunner's shoulder, or under his arm. About mid century, the invention of the matchlock firing system allowed the hand-held weapon to be completely operated by one individual. Around the second quarter of the century, improvements in gunpowder made small guns firing lead bullets more effective. However, in the course of the Hundred Years' War no tactical innovations emerged that were unique to the weapon. Handguns were employed much like crossbows, which they were beginning slowly to replace.