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ROM PREHISTORIC TIMES TO 1000 CE, the creation and use of tools with sharp edges was one of the pivotal developments in technology. When exactly early humans started sharpening rocks into cutting tools is unclear, but rudimentary hand axes—rocks with one end sharpened and the other shaped to fit into a hand were first used up to two and a half million years ago in Africa and the Middle East. Such tools were not only useful for everyday jobs, such as scraping meat off bones, but also served as potential weapons against human adversaries. These blades were made by pressure flaking—a process of hitting a rock with a piece of horn or antler until its edge became jagged—and were surprisingly sharp. Using this simple method, prehistoric man made many practical tools such as stone blades, particularly those made from flint, with smooth or serrated edges. However, a further step was required to transform the stone blade into a true fighting weapon.



The addition of a hilt or a grip to the hand ax launched the prehistoric blade's journey toward becoming a sword. By binding a wooden hilt to the unsharpened end of a hand ax, the user increased both the fighting distance between him and an adversary, and the force with which he could deliver a blow, due to the wider angle of movement the hilt provided. However, early hilts were attached rather crudely and were prone to coming loose in combat. Around 40,000–60,000 years ago, with the invention of bow and arrow technology, small stone blades began to be used as arrowheads. Designed with serrated edges or barbs, these arrows dramatically increased the accuracy and severity of injury when fired from bows, while allowing the warrior to distance himself farther from the enemy. By 10,000 BCE, warriors had a varied arsenal of bows and arrows, as well as hilted blades such as flint daggers, axes, and flint-tipped spears. The use of such weapons meant that warfare began to produce much higher numbers of fatalities.



Although stone blades remained in use in some primitive or tribal societies for centuries to come—blades made from flint, for example, were used by the Aztecs until the 16th century ce—a metallurgical revolution took place during the third millennium BCE. Copper and bronze became the new materials for blade manufacture. These were stronger and more durable than stone, and could be made into a more uniform shape and sharpened more

keenly. During the second millenium BCE, daggers were transformed into full-length swords in most parts of the world, except Egypt, which relied upon daggers. Copper and bronze, although responsible for major developments in sword manufacture, were malleable and weapons made from them could be damaged easily in combat. It was the use of iron that truly revolutionized sword production. By 900 BCE, iron began to be widely used to produce more lasting and lethal weapons. Soon pattern welding—a technique in which iron is hammered flat, folded, and welded—was being used to produce stronger and more flexible swords.



Between 1000 BCE and 1000 CE, metal weapons became the fundamental tools of organized armies across the world. However, the high cost of making swords meant that in many societies these weapons were used only by the military elite and the nobility. New techniques such as casting the blade and hilt in one piece solved the problem of broken hilt joints. The design of metal weapons also evolved, and swords featured either thrusting or slashing characteristics. A thrusting sword had a sharp point for penetration, while a slashing sword placed more emphasis

on the cutting edge. However, some swords had both qualities. The Roman gladius, for example, had a point capable of punching through chain-mail armor, but also had a double-edged blade ideal for slashing attacks. Many swords also featured grooves called fullers along much of the length of the blade; these served to lighten and strengthen the blade. The ricasso—a small, unsharpened section of the blade just above the hilt-enabled the warrior to grip the blade as well as the hilt, providing extra power and control for a thrusting move. New features appeared on the hilt as well during this period. Shaped protrusions at the end of the grip, called pommels, provided counterbalance to the blade, while metal cross-guards—sitting at a right angle to the blade just at the top of the grip—were designed to protect the user's hand from the enemy's sword. In essence, by the end of the first millennium CE, swordsmiths had laid the foundations of sword design for the next 1,000 years.

#### ANCIENT BLADES

## THE FIRST BLADES

The ability of human beings to manufacture tools was an early step toward gaining mastery over their environment. Among the first tools to appear were simple hand blades and axes made from hard rock; they were used to kill and dismember animals, but they also had the potential to be employed against other humans. The distinction between hunting and military weaponry remained blurred for many millennia. With the invention of the handle or shaft, which turned a blade into a viable handheld weapon, a revolution in hunting and fighting was underway.



# PAL DATE LENGT To be abl humans, a

#### PALEOLITHIC BLADES

**DATE** c. 40,000 bce

**LENGTH** 4 in (10 cm)

To be able to cut was of prime importance to early humans, and these stone blades—dating back to about 40,000 BCE—would have been used to dismember animals that had been killed by Paleolithic hunters. Such blades were capable of severing sinew and separating the skin from the animal's flesh.





STONE-AGE DAGGER

2,500,000-10,000 BCE

**WEIGHT** c. 18 oz (500 g)

ORIGIN Unknown

**LENGTH** 12 in (30 cm)

By lashing the flint blade to a wooden shaft with a binding of sinew or leather strips, the simple dagger was transformed into a deadly weapon of war. The addition of the shaft enabled the Stone-Age fighter to plunge the blade into his opponent with greater leverage and power.

Narrowed tip

Cutting edge



### THE FLINT WAS FLAKED TO PRODUCE A RAZORLIKE CUTTING EDGE.

#### SMALL CLOVIS POINT

/ DATE	с. 10,000 все	/ WEIGHT	c. 3 oz (9 g)
ORIGIN	USA	LENGTH	4 in (10 cm)

In 1932, the Ice-Age spearhead shown above was unearthed in Clovis, New Mexico, along with other weapon points. Its broad blade could inflict severe wounds. Binding the spearhead to a long wooden shaft enabled the fighter to throw it with great force, from a relatively safe distance.

STONE AXHEAD

**DATE** 4000–2000 BCE

**WEIGHT** c. 2½ lb (1 kg)

ORIGIN England

LENGTH 8 in (20 cm)

A dual-purpose tool, the stone ax could have been used for clearing vegetation but would also have been capable of smashing a human skull. The addition of a wooden handle provided greater reach and power. This axhead was dredged from the Thames River in London.

Smooth stone axhead

Leather strips bind axhead to shaft

Reproduction wooden handle

### NOT JUST TOOLS, AXES MADE FROM THE BEST FLINT WERE ALSO A SIGN OF WEALTH AND STATUS.

FULL VIEW



### MESOPOTAMIA AND EGYPT

The spear and the bow were the chief weapons of the ancient Egyptian and Mesopotamian soldier. Arrowheads were made at first from flint, then from bronze, and the best specimens were capable of punching through contemporary body armor at close range. Spears were used primarily as thrusting weapons, and battle-axes were also used, the invention of bronze facilitating the development of various shapes for combat use. Swords, due the expense of their production, were more of a rarity, but became increasingly popular during the 1st millennium BCE as Middle Eastern warriors encountered sword-wielding enemies from other territories.



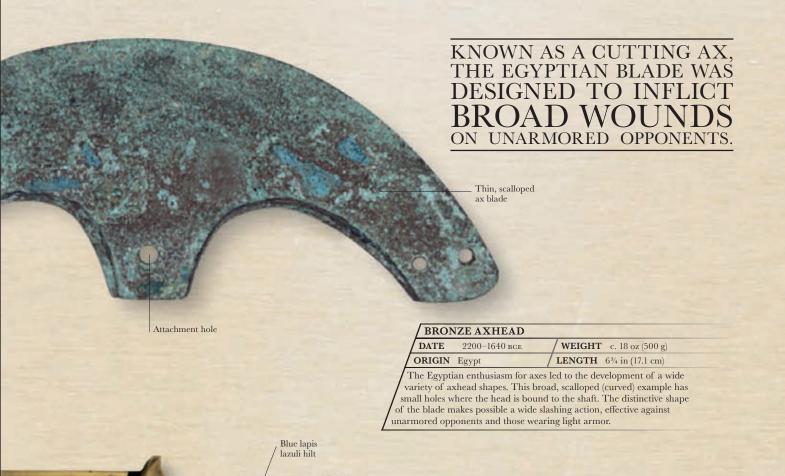
#### CEREMONIAL DAGGER

 DATE
 c. 2500 bge
 WEIGHT
 c. 34 oz (950 g)

 ORIGIN
 Sumer
 LENGTH
 c. 10 in (25 cm)

Excavated from the burial site of the Sumerian Queen Pu-Abi (died around 2500 BCE), this ceremonial dagger is of the highest quality—a suitable weapon for a monarch to carry on her journey to the afterlife. The blade and scabbard are made of gold, while the hilt is constructed from lapis lazuli finished with gold decoration.

Double-edged blade





#### **CEREMONIAL AX**

DATE 1539-1075 все

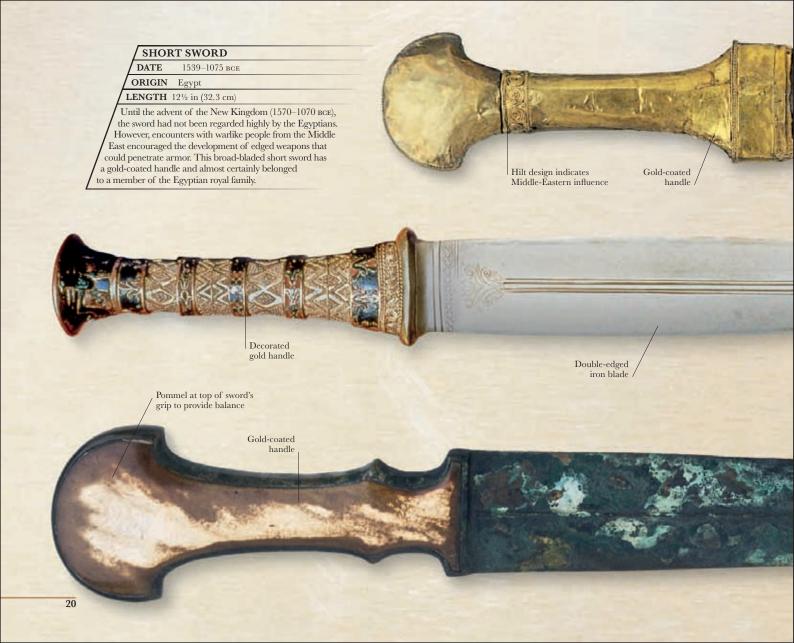
ORIGIN Egypt

**LENGTH** 17 in (43.5 cm)

The ax had strong associations with power and prestige, and ceremonial versions were carried by Egyptian rulers. Typically, a scene showing the triumph of the pharaoh would be engraved on the axhead, although in this instance a warrior is depicted on horseback in an open metalwork design.



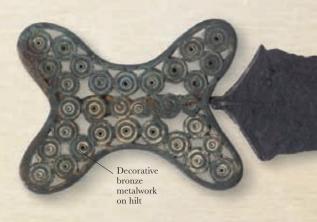






### BRONZE- AND IRON-AGE BLADES

Bronze- and Iron-Age Europe was home to several ferocious warrior peoples. These included the Teutones, Cimbri, Goths, and Celts, and incorporated areas from the Black Sea to Britain. The Celts were renowned swordsmen—heavily armed infantry who, on foot, charged repeatedly at their enemies with little protection other than a helmet and shield. Many of the surviving swords of this period feature decorative hilts and blade engraving.



Hilt was originally wrapped in leather Extended ricasso (unsharpened part of the blade close to the hilt)



#### BRONZE LEAF-SHAPED SWORD

DATE с. 1000 все

ORIGIN Britain

LENGTH 223/4 in (57.9 cm)

Until ironworking started in Europe around 600 BCE, bronze dominated weapon manufacture. This leaf-shaped sword, cast in one piece, is typical of Bronze-Age swords in size and shape. Bronze is hard to sharpen and keep sharp, so this blade represents significant metalworking talent.



#### CELTIC DAGGER DATE 1st millennium BCE ORIGIN Britain **LENGTH** c. 11 in (27 cm) This dagger displays the breathtaking art of the Celts. As with so many pieces of arms and armor, this piece has probably survived because it was used for Iron blade funerary or display purposes. Knives and daggers were working tools, but this example is so intricate that it may not have been designed for everyday use. GERMANIC BRONZE SWORD DATE 1000 BCE ORIGIN Germany **LENGTH** 26 in (66.5 cm) One-piece, leaf-shaped swords of the Bronze Age were designed for slashing and required a different style of combat than a spear or thrusting sword. These swords suited the method of fighting the Celts preferred. Double-edged blade

### CELTIC WARRIOR

The Celts were a group of tribal peoples, including Gauls, Iberians, and Britons, who migrated from central Germany to Western Europe around the 1st millennium BCE. They came into conflict with the Romans, whom they fought regularly from the 4th century BCE.



The ancient Greek historian Strabo had this to say about the armory of Celtic warriors in battle: "Their arms correspond in size with their physique; a long sword fastened on the right side and a long shield, and spears of like dimension." Their long swords were initially made of bronze and later, iron, and were double-edged, like the example shown here. Celts also used the falcatal (short slashing sword) and long daggers as side weapons. Celtic warriors would typically face the enemy as a mass and make a fearful noise by banging their shields and screaming, attempting to intimidate their opponents. The attack itself was largely a mêlée, the whole mass of warriorsusing shields to protect themselves—surging into enemy lines, slashing with their swords and stabbing with their spears.









Hollowed-out socket

#### **BRONZE AXHEAD**

DATE 750-650 BCE

ORIGIN Europe

Bronze battle-axes, with sockets to take a wooden shaft, are associated with the Celts from the earliest times. They were used as tools but they were also useful in hand-to-hand combat. They became more effective when made from iron.

### AS METALS IMPROVED, THE EDGES BECAME SHARPER AND CUTTING WEAPONS BECAME MORE EFFECTIVE FIGHTING TOOLS.

ORIGIN Britain

DATE

This decorated iron dagger would have belonged to a tribal chief. In this period, iron blades showed status and were used for everyday functions such as cutting. In extreme circumstances, they would be pressed into use as combat weapons.

IRON-AGE DAGGER IN SHEATH

550-450 все

Wooden sheath with bronze strips

## ANCIENT GREECE

The warriors of ancient Greece used a variety of edged weapons. A classic type was the *xiphos* (*pp. 30–31*), a double-edged blade that swelled out before the point and was intended primarily for slashing attacks against ranks of enemy infantry. The Greek *kopis* was a powerful chopping weapon, with a single-edged, curved blade, set heavily forward to assist the cutting action. Such blades were the principal weapons of hoplites (*pp. 30–31*) for some 600 years and influenced Roman and Middle Eastern designs. Daggers were little known in the Greek world, but axes were sometimes used by heavy infantry (heavily armed or armored foot soldiers) to rupture enemy shields and armor.



 DATE
 c. 6th century BGE
 WEIGHT
 c. 3½ lb (1.5 kg)

 ORIGIN
 Greece
 LENGTH
 c. 20 in (51 cm)

The hoplite ax was a powerful combat tool. This particular example, a modern-day replica of the ancient weapon, features a deep, curved main cutting blade balanced by a sharp pick head. The blade, socket, and pick are cast in one piece of bronze, and the haft is secured to the socket with strong rawhide bindings, looped in a cross pattern and tied below the blade.

### GO NEAR, STRIKE WITH A LONG SPEAR OR A SWORD AT CLOSE RANGE AND KILL A MAN

SPARTAN POET TYRTAEUS, 7TH CENTURY BCE

Solid bone grip

KOPIS DATE c. 4th century BCE WEIGHT c. 18 oz (500 g) ORIGIN Greece **LENGTH** c. 24 in (61 cm) Pick head acts as both weapon A scythe weapon developed from an agricultural tool, the kopis appears in and balancing feature Greek art from around 500 BCE. The single-edged blade had a sharp curve, and some versions had a knuckle guard on the hilt. This replica shows a grip made of bone riveted onto the tang (hidden portion of the blade running through the hilt and pommel) and a fuller running along the back of the blade. SCABBARD

Curved, single-edged blade

Fuller

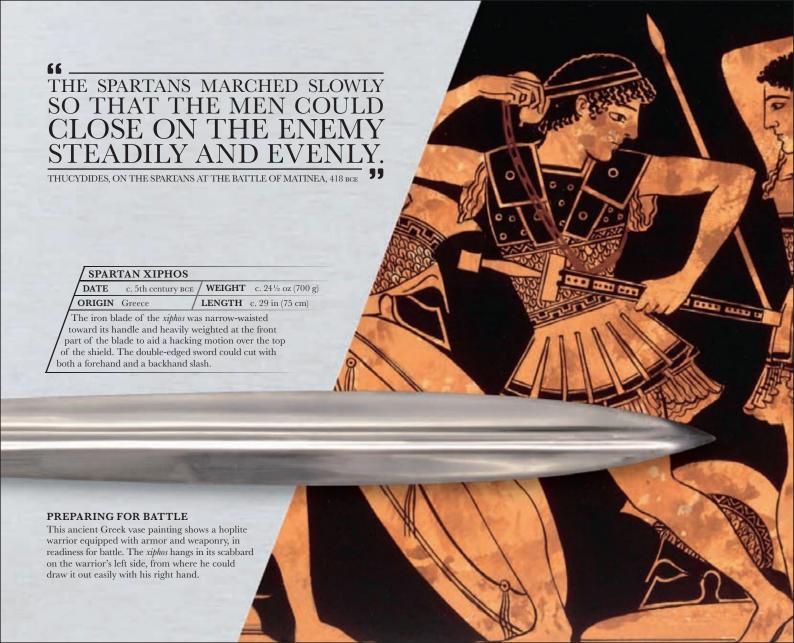
### HOPLITE

Hoplites, so named after the hoplon shield, were citizensoldiers—Greeks who would, in times of crisis, break away from their everyday duties to go to war. Hoplites were the backbone of Greek infantry warfare from the 5th century BCE.



Hoplite tactics were disciplined, based on a structure known as a phalanx—an eight-rank-deep formation bristling with spears and swords. The ranks of the phalanx stood tightly in line, each man shoulder-to-shoulder, with shields pressed up against the backs of the men in front. The spears of the first three ranks were pointed forward in the attack, while warriors in the ranks behind angled their spears upward, ready to deploy in action. This presented a powerful battering-ram effect against opposing forces. Hoplites also used a sword called a xiphos (below), a double-edged weapon well-suited to close-quarters fighting. The most famous among hoplites were the Spartans, citizens of the city-state of Sparta in southern Greece.

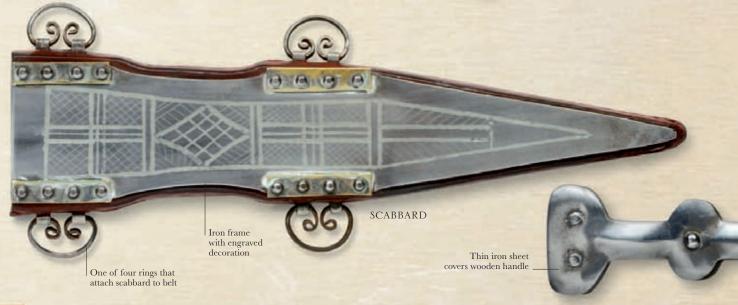


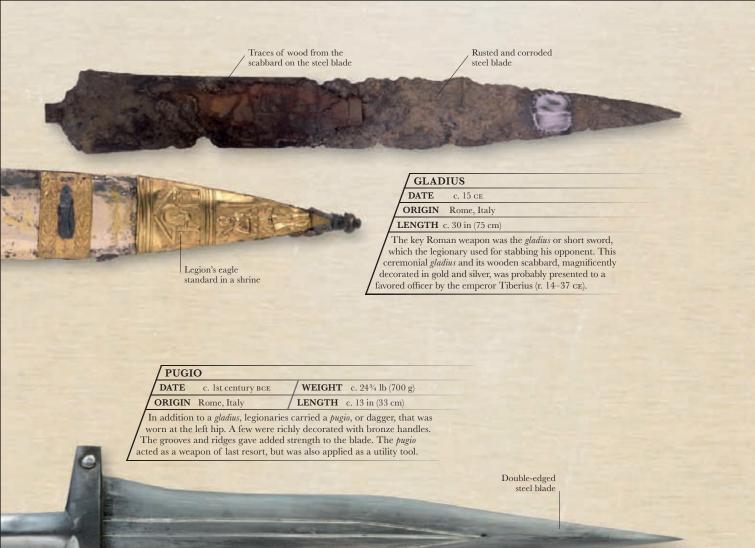


## ANCIENT ROME

The Roman army was the finest fighting machine of the ancient world. Highly disciplined and trained, its troops were generally well led. A Roman legionary (armored foot soldier) was fully equipped for close-range battles in densely packed ranks. While archers and javelin-throwing troops would disrupt the enemy, the main battle was invariably fought by the heavily armed foot soldier. Protected by a large rectangular shield, he fought in close formation to overwhelm the enemy with his *gladius*, or short sword.







### ROMAN GLADIATOR

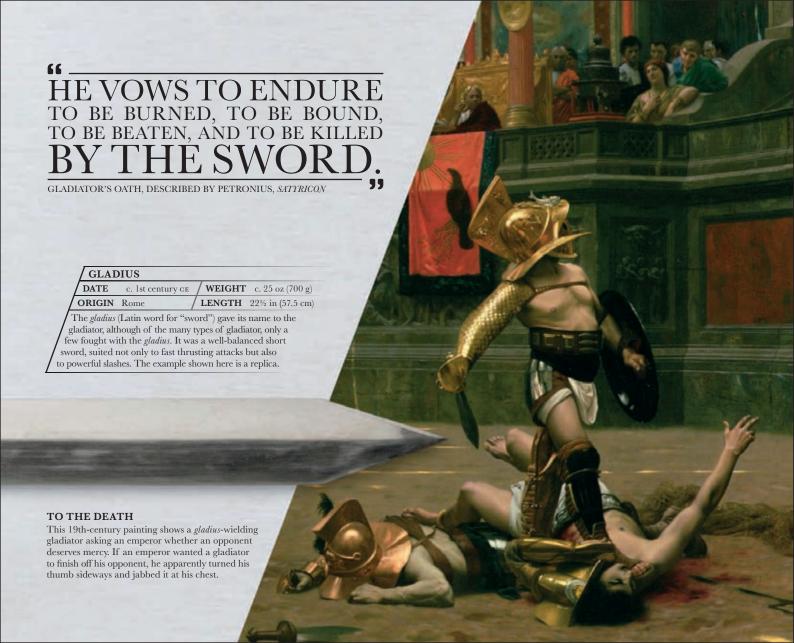
Among the most memorable figures of the Roman Empire, gladiators were volunteers, or prisoners and slaves who fought for public entertainment. Volunteers craved social standing; for the latter, repeated victories could bring freedom.



Gladiatorial fighting began in the 3rd century BCE at private events, but by the 1st century BCE it had grown into an important part of the public games that were played in great

arenas at imperial expense. Gladiatorial games were at their peak from the 1st century BCE to the 2nd century CE. The gladiators were rigorously trained and fought as specific types—each type distinguished by the weapons and armor they used and by their manner of fighting. Retiarii ("net men") fought with trident, dagger, and net, while dimachaeri ("bearing two swords") were armed with a sword in each hand. Usually, gladiators fought one-on-one, in bouts that ended in submission, injury, or death.





# ANGLO-SAXON AND FRANKISH BLADES

The great majority of Saxon, Anglo-Saxon, and Frankish warriors were infantrymen, who carried a shield and a dagger, often wore a helmet, and fought with spears, axes, and the single-edged weapon variously called the *seax*, *scamasax*, or *scramasax*. More slender double-edged swords were also wielded, although only by the nobility who could afford them. Axes provided both armor-smashing force and, in some cases, throwing weapons.

False, unsharpened edge

DATE

900-1000 ce

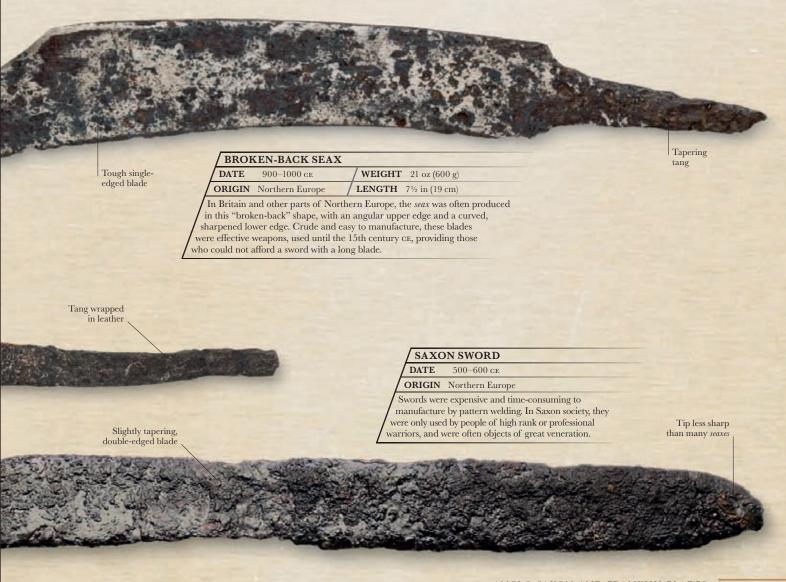
ORIGIN Northern Europe

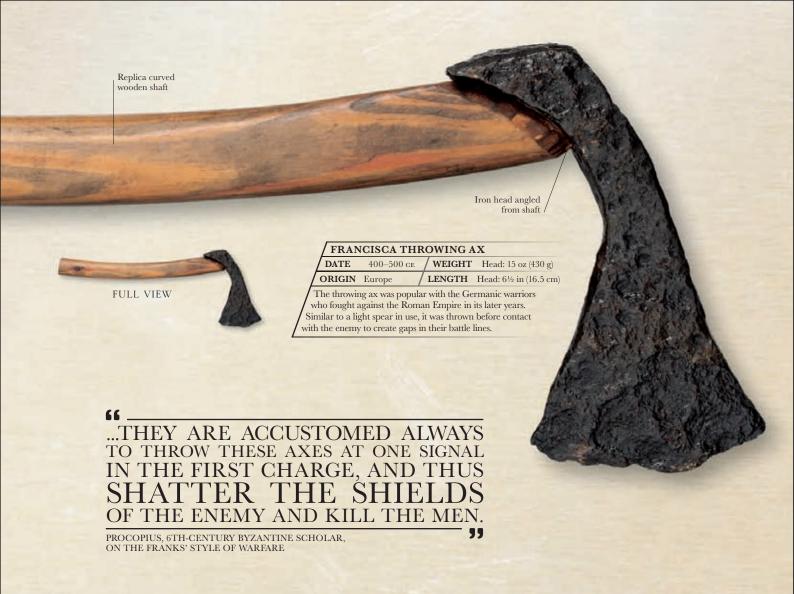
WEIGHT 21 oz (600 g)

**LENGTH** 93/4 in (24.76 cm)

Swords were extremely expensive weapons, so most people carried a blade that doubled as a fighting dagger and a working tool. Called the *sax* or *seax* (the root of the name "Saxon"), other examples of this weapon have been found from the 5th century onward.









## EARLY ARMOR

From ancient times, warriors sought ways to protect themselves from swords and spears. Shields provided handheld protection, while thick animal hide jackets or suits offered some resistance to sword slashes. Far more advanced armor, however, came in the form of chain mail, which was flexible and provided the superb protective qualities of metal.



The earliest example of chain-mail armor is from a Celtic chieftain's grave in Romania, dating to the 4th century BCE. Mail was difficult to penetrate, although some heavy thrusting swords could split poor-quality links. The impact from a sword blow could also injure the wearer, who continued to use a shield to defend himself against blows. Chain mail became popular among European armies, including the Anglo-Saxons, whose armor and shield feature here.

	ANGI	ANGLO-SAXON SHIELD		
/	DATE	c. 10th century	/ WEIGHT	c. 5½ lb (2.5 kg)
$\mathcal{L}$	ORIGIN	Britain /	LENGTH	c. 36 in (90 cm)

An Anglo-Saxon shield, of which a replica is shown here, was made from planks of wood riveted together, the whole then covered with leather. The wood types used were those that did not split easily on impact, such as lime and poplar.

MAIL COAT

DATE c. 10th century / WEIGHT c. 22 lb (10 kg)

ORIGIN Britain / LENGTH c. 30 in (76 cm)

This Angle-Sayon mail coat is made from riveted

This Anglo-Saxon mail coat is made from riveted, interlocked iron rings. Worn like a jacket, it provided a flexible armor that allowed the wearer free movement in combat, although its weight tested the soldier's endurance. The example shown here is a replica.





## VIKING BLADES

The seafaring Scandinavians known as Norsemen or Vikings have a special place in European history. From the British Isles to the Varangian Guard in Kievan Rus (modern-day Ukraine), they came to symbolize the quintessential Dark-Age warrior. Striking from the sea in their longboats, they plundered the coasts of Europe, as well as settling possibly as far afield as Nova Scotia, Canada. The Vikings were well armed, in particular with swords and axes, but also with spears and bows. They carried round shields and most wore helmets; many wore chain-mail armor as well.



#### IRON AX

**DATE** c. 900 ce

ORIGIN Unknown

This Viking ax is known as the bearded ax because of its elongated lower edge and slanting blade, which enabled downward blows. The crescent-shaped blade was capable of splitting open plate-steel armor.



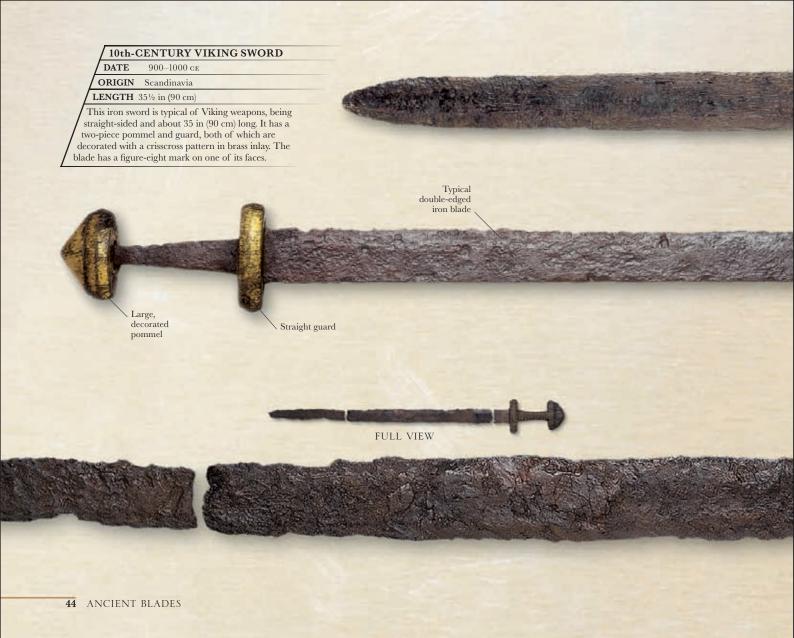
# Cutting edge made of hardened steel Broad, crescent-

# IN BATTLE, VIKINGS THREW AXES AS WEIGHTY MISSILES, AND USED THE BLADE CURVES TO HOOK NECKS AND ANKLES.



**FULL** VIEW

shaped blade









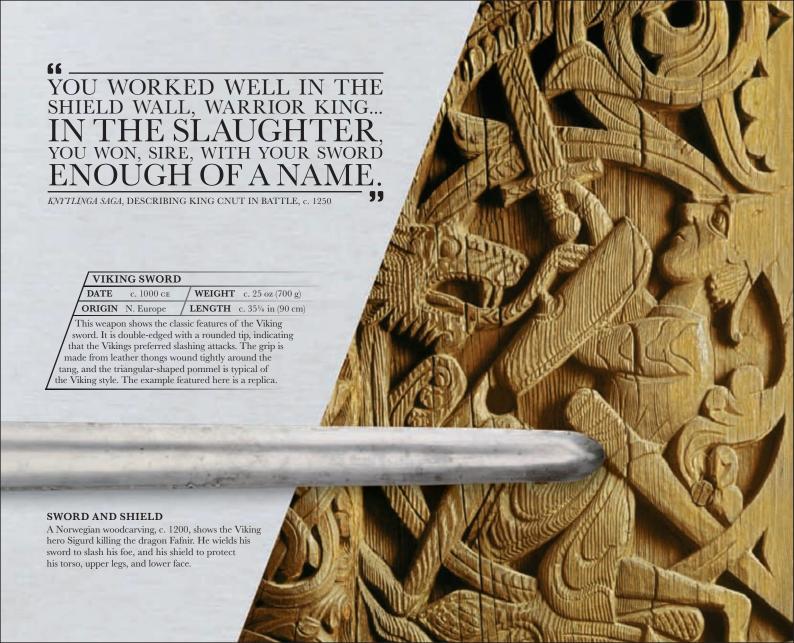
# VIKING RAIDER

From the 8th to the 11th centuries, the Scandinavian Vikings, traveling in their now-famous longboats, explored, raided, and often wreaked havoc over large parts of Europe. Over time, they voyaged as far as North America and the Black Sea. Viking warriors perfected their own brand of infantry, cavalry, and amphibious warfare.



The typical Viking warrior's body armor consisted of a padded leather or caribou-hide jacket or, if he was wealthy enough, a chain-mail coat. A close-fitting steel helmet (without the horns often depicted in popular culture) protected the skull, nose, and cheeks. For hand-to-hand fighting, Vikings preferred battle-axes and double-edged swords. If they were forced to fight against an organized enemy, however, they would typically stand shoulder-to-shoulder, forming a protective wall with their shields and spears. They threw javelins and throwing axes, and fired sling shots at the enemy as a prelude to a spirited charge, in which their swords, as well as handheld axes, came into play in a vicious, hacking mêlée. They held their shields in the left hand during the fight, using the shield with its boss (the bulge at the center of the shield) as a battering weapon.





## SPEARS AND ARROWS

Before the advent of workable metals, the challenge for ancient warriors was to create sharp, durable spears and arrowheads from natural materials. Mostly, this was achieved through either sharpened and fire-hardened wood, or by knapping (chipping off) pieces of flint or other stone to produce a point or edge. Flint arrowheads in particular reached a high degree of sophistication, before the Stone Age gave way to the Bronze Age during the 3rd-2nd millennium BCE, and the Iron Age a millennium later. The metals produced sharper, harder fighting points, and molding allowed for more uniform designs.

Tang to attach arrowhead Barb

to shaft

#### FLINT ARROWHEADS

DATE

с. 2700-1800 все

ORIGIN Unknown LENGTH 2 in (5 cm)

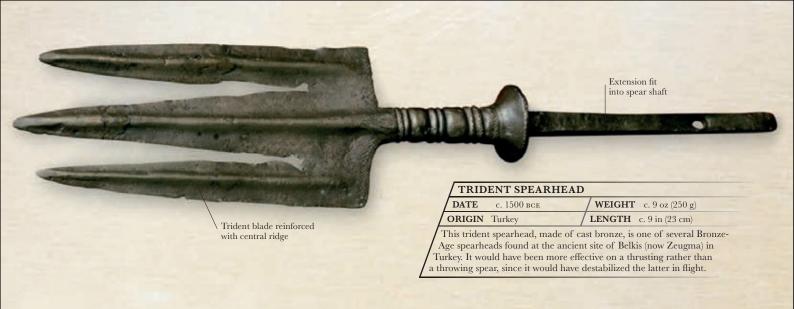
The bow was a significant development in weapon technology, enabling the archer to fire from a distance with power and accuracy. Made of flint, these arrowheads have barbs that would embed themselves deep inside the victim, ensuring that any attempt to remove them would be difficult.

> Pieces of horn glued between wood

Bow nock to hold bowstring

Flight made of feathers





# A BARBED SPEARHEAD WAS IMPOSSIBLE TO EXTRACT WITHOUT CAUSING FURTHER INJURY.











HERODOTUS, GREEK HISTORIAN, 5TH CENTURY BCE

#### HOPLITE SPEAR BUTT

DATE 4th century BCE

ORIGIN Macedonia (Greece)

**LENGTH** 15 in (38 cm)

**FULL** VIEW

Made from bronze, this spear butt's main purpose was to act as a counterweight to the head at the other end of the spear. However, if the spearhead broke off in battle the butt could be used as a weapon. A thick bronze ring secured the butt to the spear.



#### **PILUM**

**WEIGHT** c. 6½ lb (3 kg) DATE c. 1st century BCE ORIGIN Rome **LENGTH** c. 6 ft (1.8 m)

The pilum was a weighted javelin with a long iron spearhead. Designed to pierce enemy shields or armor, the spearhead would bend or break after impact. This not only disabled the enemy's shield, but also prevented him from extracting the bilum and throwing it back. The example shown here is a modern-day replica.

> Long shaft made of ash

#### LANCEA

WEIGHT 21 oz (600 g) DATE c. 2nd century BCE **LENGTH** c. 4 ft (1.2 m)

ORIGIN Rome

The lancea was a light spear that Roman infantry used for both thrusting and throwing. It was much better suited to fighting enemy cavalry than the heavy and unwieldy pilum and became the predominant spear in the Roman army during the middle to later years of the Roman Empire.

Wide, leaf-shaped spear

#### **GREEK SPEARHEAD**

DATE 6th-5th centuries BCE

ORIGIN Greece

**LENGTH** 12 in (31 cm)

The spear was the hoplite's principal weapon. He used his short iron sword only when his spear broke during fighting. This spearhead is made of iron and has a broad blade. The missing shaft would have been fashioned from a strong wood such as ash.

Leaf-shaped head

#### **BRONZE SPEARHEAD**

**DATE** 900-800 BCE

ORIGIN Unknown

**LENGTH** c. 81/4 in (21 cm)

Spears and javelins (throwing spears) played an important role in Celtic battles. Charging at the enemy, the Celtic infantry would hurl javelins from about 90 ft (30 m), breaking up the ranks ahead for single combat. Both the infantry and cavalry used spears as thrusting weapons.

SHORT SAXON SPEAR

DATE

400-500 CE

ORIGIN Northern Europe

**LENGTH** Head: 8½ in (21.5 cm)

The spear and javelin were the main weapons of the Saxon and Frankish era. They were carried equally by a lord, his retinue, professional fighters, and troops. As with the Celts, spears were used for hand-to-hand combat, whereas javelins, which tended to be lighter, were thrown before contact with the enemy. The angon (Frankish spear) was much like the Roman pilum (pp. 54–55).

Replica shaft

Socket hammered tightly to shaft and riveted

Split socket

# MANY ANGLO-SAXON SPEARS WERE LONGER THAN THE WARRIOR HIMSELF, GIVING HIM A KILLING REACH OUT FROM THE BATTLELINES.

Leaf-shaped spearhead

#### LONG SAXON SPEAR

**DATE** 400–500 ce

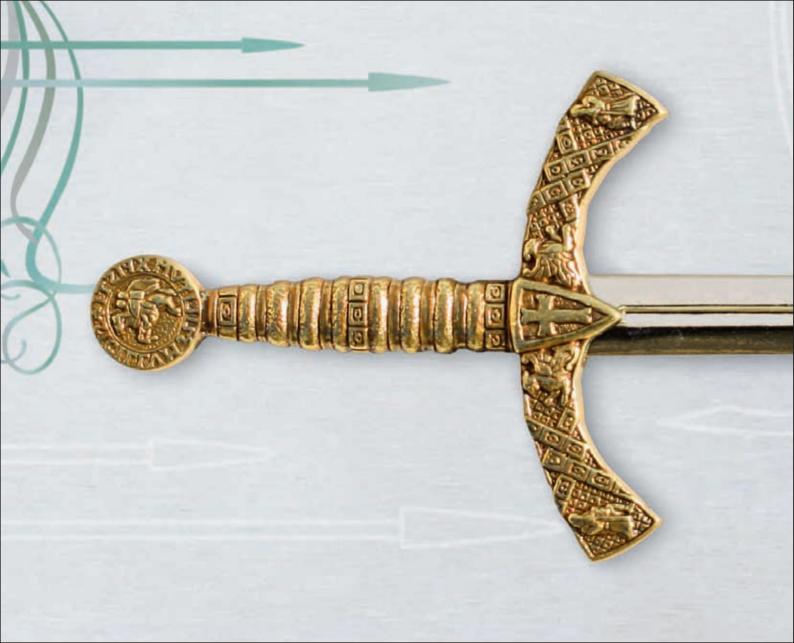
ORIGIN Northern Europe

LENGTH Head: 19 in (48 cm)

The use of spears is mentioned in an Anglo-Saxon poem about the battle of Maldon, which took place in Southern England in 991 cg. It tells how Eorl Byrthnoth, the Anglo-Saxon leader, kills two men with javelins, before he is wounded by a Viking spear. Only then does he draw his sword. Thrusting spears, like the one shown below, were longer than javelins, with larger heads attached to the shaft with a split socket.

### LOZENGE-SHAPED SPEARHEAD DATE 600-1000 се Steep angle of blade sides produces sharp point ORIGIN Northern Europe **LENGTH** 14½ in (36.6 cm) Throwing spears were important Viking weapons. Their use is recorded in Viking sagas, which include stories of warriors who could throw two spears at once. The Norwegian king Olaf Tryggvasson (r. 995–1000) was said to be able to do this from both hands at the same time. Blade strengthened by rib Spearhead sharpened on both sides Long blade inflicted deep injuries Long, sharp point Central reinforcing rib







NTHE HIGH AND LATE MIDDLE AGES, the period roughly defined as c. 1000 to 1500 ce, swords entered a crucial stage in their history. Evolving from the slashing swords of the Vikings into a classic cruciform design (so called because of the development of straight cross-guards that made these swords resemble a cross), European swords entered a period termed as the "knightly phase"—their high cost of production generally made them accessible only to affluent knights. In the Far East, medieval Japan saw the emergence of swords specifically designed for the elite members of the military nobility, known as the samurai. Sword design became increasingly sophisticated and diversified—hilts became more complex, with the addition of more features, and blades were designed in different shapes.



In Europe, swords became longer and more powerful, often designed to be held with a two-handed grip. Typical swords of the early 14th century, for example, had straight, broad, double-edged blades up to 4 ft (1.25 m) long, large pommels, and straight or forward-curving quillons—the extended arms of a cross-guard. In the hands of a skillful knight, such a weapon was capable of causing devastating

injuries on unprotected soldiers. Yet, from the end of the 13th century, chain-mail and plate armor pushed sword design in new directions. Slashing weapons were largely useless against armor, so thrusting weapons were developed, featuring blades with a diamond or lozenge cross-section. Such blades were thicker in the middle and therefore more rigid. A well-equipped knight would often carry both a thrusting and a slashing sword into battle. Designs of hilts also developed during this period. Cross-guards steadily became more elaborate, with additional features such as the forefinger hook, which protected the warrior's finger if the sword was gripped by the ricasso for better control. A narrow metal strip called the knuckle guard, which curved over the length of the hilt, protected the warrior's knuckles. These features laid the groundwork for the development of some highly ornate hilts during the Renaissance (14th–17th centuries), especially the hilts of long thrusting swords known as rapiers, which became common in the 16th century.



Outside Europe, sword design followed different paths. The Islamic world, which consisted of the Middle East, North Africa, Central Asia, and India, favored curved, single-edged swords. Such swords were ideal for the cavalry-style warfare of the Muslim armies, and were decorated with scrollwork and religious texts. Farther east, Asian swordsmiths were also producing single-edged swords that displayed some degree of curve. In Japan, prior to the 10th century, the two primary types of blade were the straight single-edged chokuto and the double-edged warabiti-tachi. From the 10th century, however, Japanese swords, called katana, began featuring a graceful curve. By the late medieval period, the samurai had started pairing the long katana with a shorter, more curved sword called the wakazashi. Two classic sword types also emerged in China during the medieval period—the straight, doubleedged jian and the deeply curved, single-edged, and onehanded dao, as well as its two-handed version, the dadao. Although both the jian and the dao were used up until the 19th century, it was the curved dao that predominated, mainly because it suited the style of warfare adopted by the Chinese cavalry. Similarly, India developed the curved talwar. Produced from the 14th century, it reached a highly refined form during the 16th century. While all these developments were taking place across the world, certain societies were yet to discover metal and its benefits in sword construction. Weapons used by warriors of the Aztec

Empire were still being made from stone and wood, and were no match for the sophisticated European swords they would face in the near future.



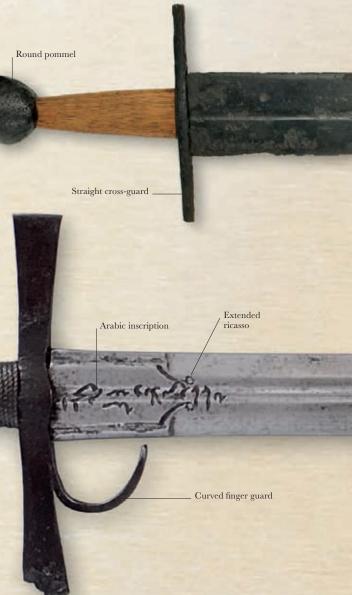
Since swords remained expensive items affordable only to affluent officers, staff weapons, or polearms—blades fixed to long wooden shafts-were developed to equip the ordinary foot soldier with powerful killing tools. In Europe, polearms such as the fauchard, glaive, and guisarme enabled the infantry to ward off cavalry attacks, as well as put distance between themselves and the enemy. During the 14th century, the versatile halberd came into use—the weapon featured an ax blade, a long stabbing knife, and a hook to dismount cavalry. Similar types of staff weapon were found across the world, such as the guan dao of China and the saintie of India. In the right hands, these weapons could easily match the more refined sword in battle.

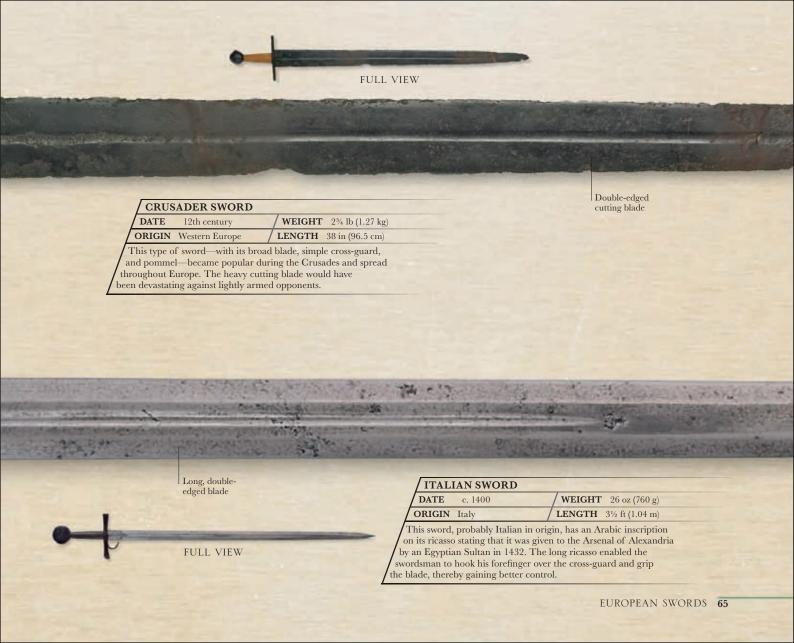
### THE MIDDLE AGES

# EUROPEAN SWORDS

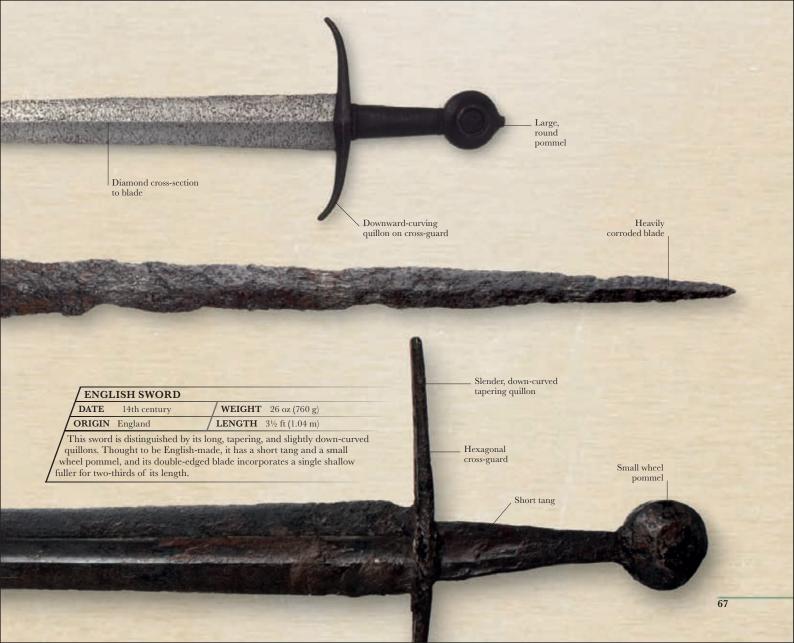
In medieval Europe, the sword was the most highly regarded of all weapons. It was not only a magnificent weapon of war—often handed down through the generations—but had also evolved into a symbol of status and prestige; a man became a knight by the dubbing of a sword on his shoulders. Early medieval swords were heavy cutting weapons that were used to hack their way through chain-mail armor. The development of high-quality plate armor led to the introduction of sharply pointed thrusting swords, whose blades became progressively longer.











# TOURNAMENT COMBAT

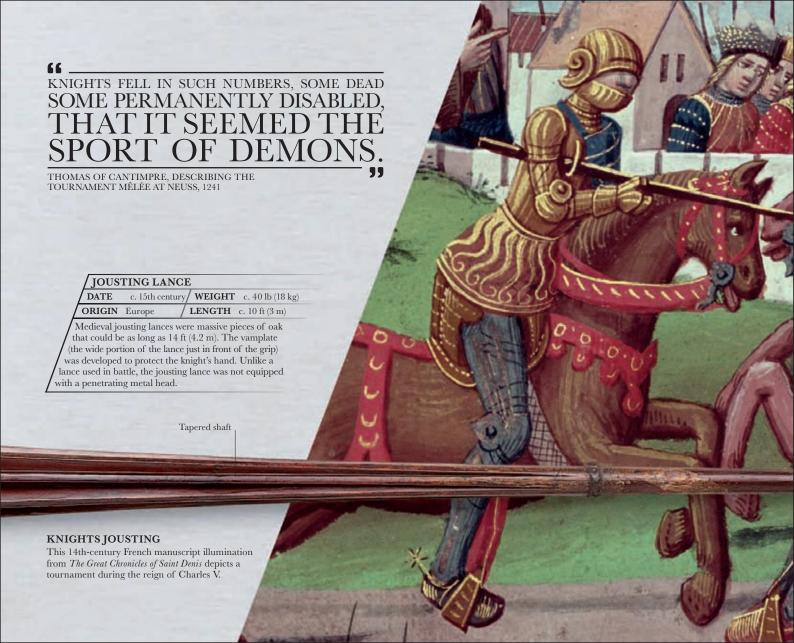
Medieval tournaments were a way for knights to practice and display their skills when not at war. Although warrior games predated the Middle Ages, tournaments seem to have become popular only from the 11th century. There were two main elements to the tournament—the mêlée and the joust.

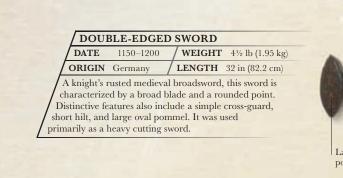


The mêlée was essentially a free-for-all mock battle between mounted and dismounted knights, who were armed with a wide range of weapons, including falchions, broadswords, bastard swords, great swords, and maces. The objective of the mêlée was to capture or disable competing knights. The competitions

could sometimes turn bloody—in 1241, at Neuss in Germany, more than 60 people died in a tournament mêlée. Such extensive loss of life rendered the mêlée unpopular, and by the 14th century jousting became the more prominent tournament game. Jousting involved two mounted, armored knights charging one another with couched lances (a lance clamped under the armpit). The battle took place in special roped-off enclosures within fields, with the knights riding toward each other along each side of a long barrier. The principal objective of the joust was to unseat the opponent with an accurate lance strike to the chest or head—a blow delivered at full gallop. This spectacular event remained popular until the early 17th century.

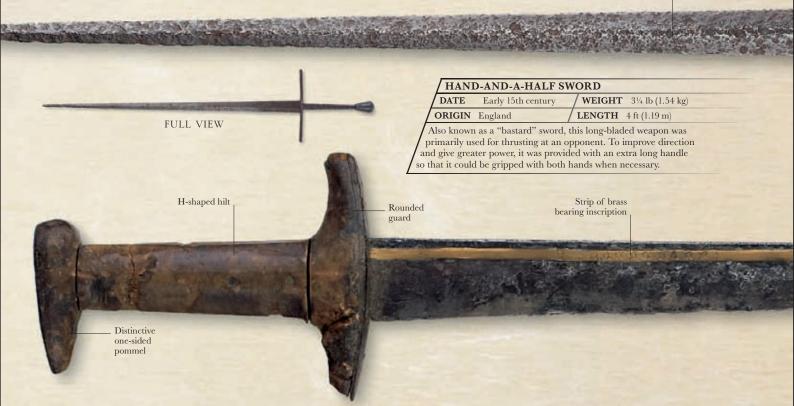


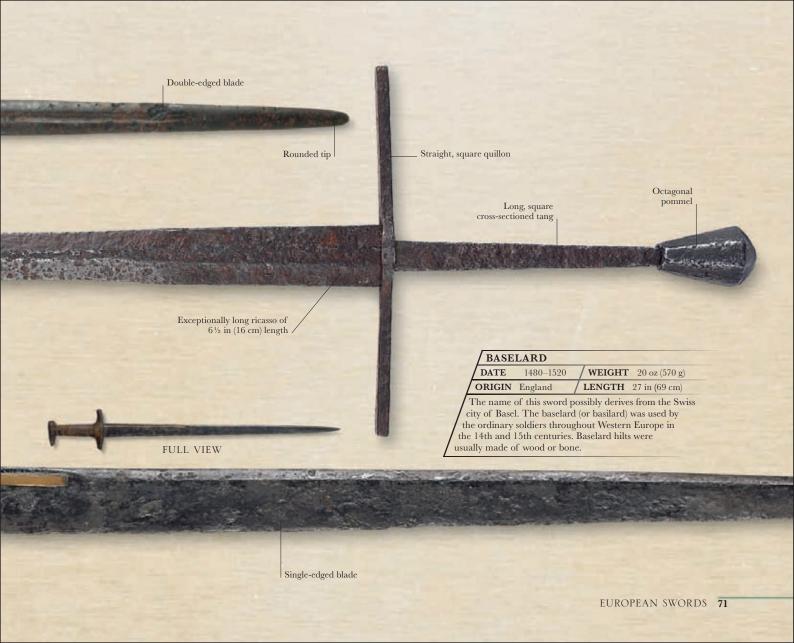


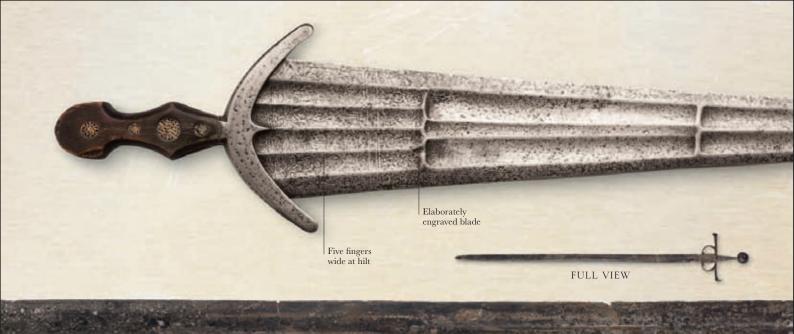




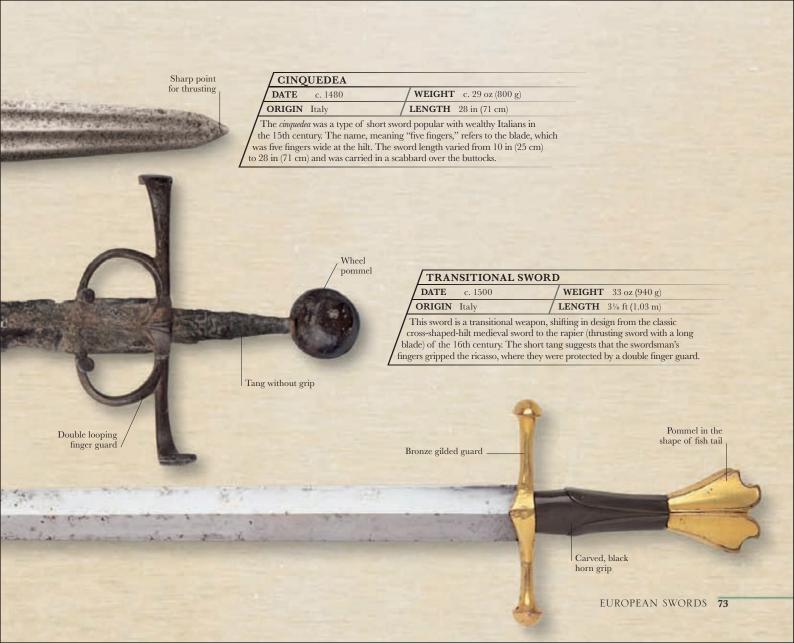


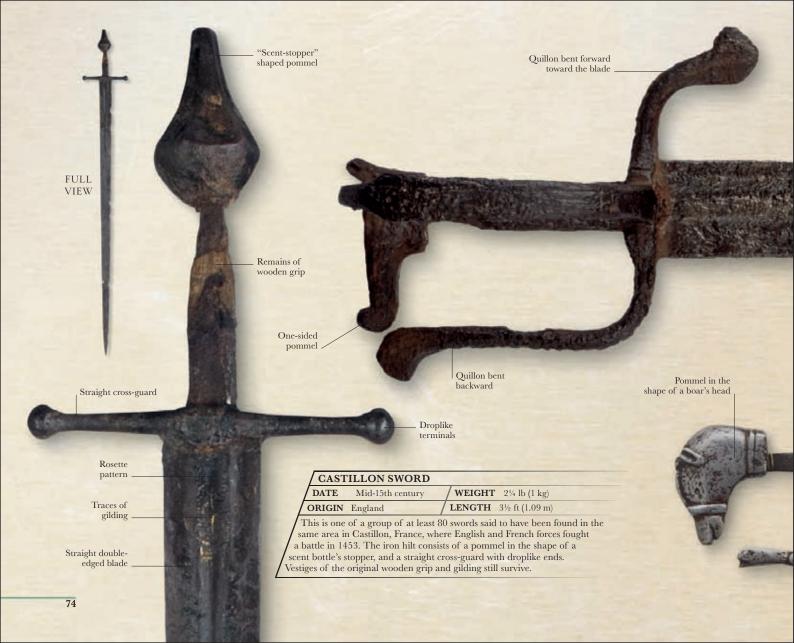




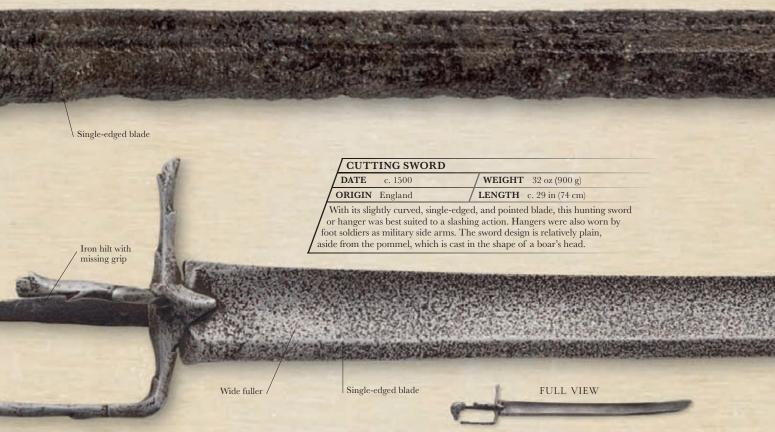








# SHORT SWORD DATE c. 1500 | WEIGHT 28½ oz (790 g) ORIGIN England | LENGTH 29½ in (74.5 cm) Used primarily by foot soldiers, this English-style sword was designed with a single edge and a sharp point. The quillon at the bottom is longer and extends backward toward the pommel, which has a protrusion on the same side, thereby forming a simple knuckle guard.



**FULL VIEW** 

# MEDIEVAL KNIGHT

The knight was the elite fighting man of medieval Europe. Starting off as a mere military servant to a local lord in the 9th or 10th century, he gradually achieved a high social standing among warriors, admired for his skill with the sword and spear.



The shift from a simple soldier to noble warrior during the Middle Ages brought about changes in a knight's armor and weapons. An 11th-century knight typically wore a hauberk (a coat of chain-mail) and a conical helmet. By the 15th century, a knight's armor had evolved into a full suit of expensive plate armor. His weaponry expanded to include war hammers and maces, as well as long, single- or double-edged swwords, such as the greatsword shown here. Although the classic form of combat was charging on horseback, knights were equally adept at fighting on foot. Adapting well to the constantly evolving challenges of the medieval battlefield, knights remained a dominant force until the 16th century.



Double fullers

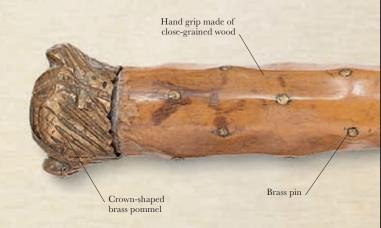
Single-edged

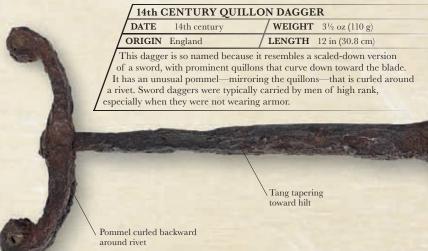
Long, straight quillon on cross-guard



### EUROPEAN DAGGERS

Medieval daggers were used mainly for self-defense, assassinations, and close-combat fighting, where a sword would be too cumbersome, or when a sword had lost or broken in action. Traditionally, daggers were considered a weapon of the lower classes, but during the 14th century, men-at-arms and knights began to carry them, with the weapon normally being worn at the right hip.





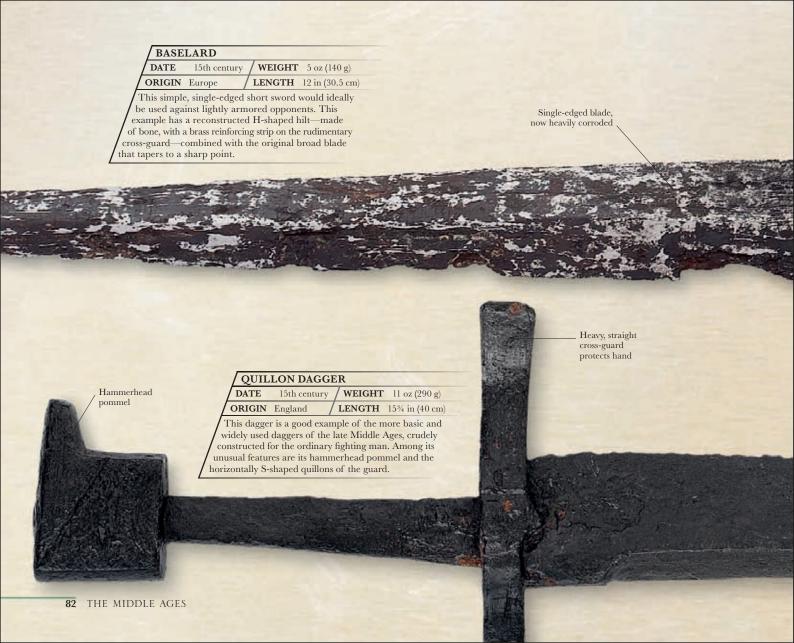


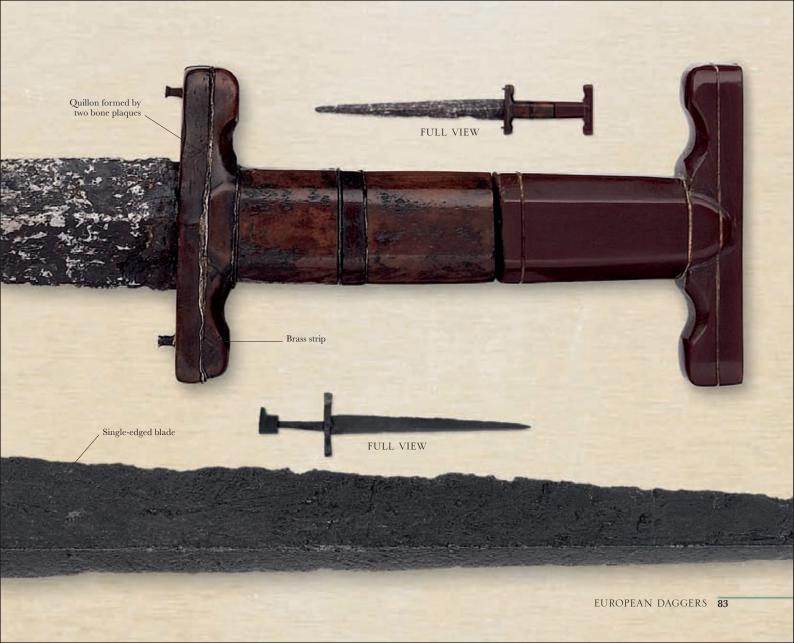












# MEDIEVAL FOOT SOLDIER





## EUROPEAN STAFF WEAPONS

The long, two-handed staff weapons of the Middle Ages were used primarily by infantrymen as a defense against the otherwise invincible armored knight. In 1302, at the battle of Courtrai (in present-day Belgium), a rag-tag army of Flemish peasants and townspeople defeated a force of armored French cavalry using long, axlike weapons, which were forerunners of the halberd. The power generated while thrusting the long shafts of the staff weapons meant that even if armor was not penetrated, the infantry could deliver a severe injury. Cavalry were also armed with pole arms, although these were single-handed weapons like the war hammer and mace. They could be wielded on horseback and were capable of severely injuring even heavily armored soldiers.

POLEAX

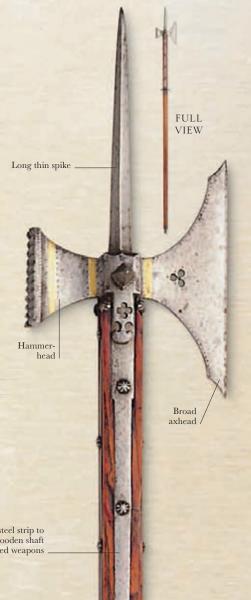
DATE

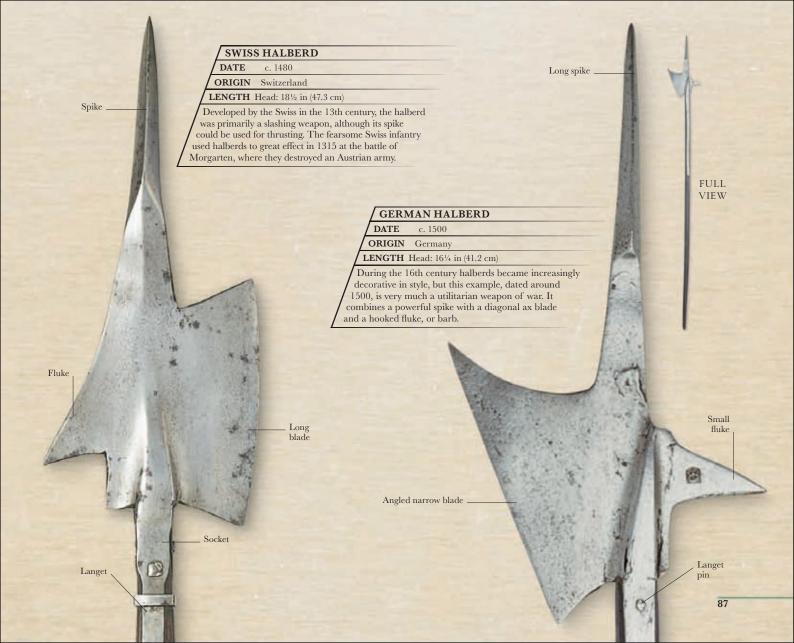
ORIGIN France

**LENGTH** Head: 12½ in (32 cm)

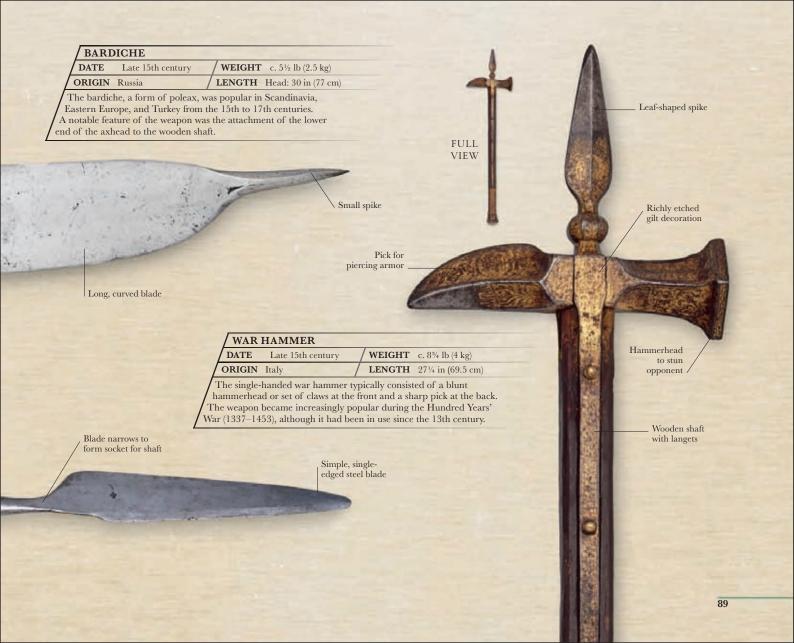
1470

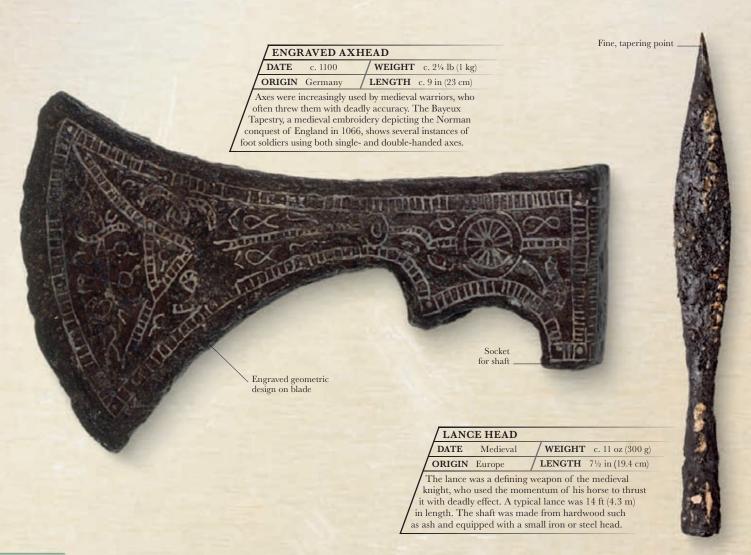
The poleax was a multipurpose weapon. Its spike was used for thrusting, the ax blade for cutting through armor, and the hammerhead for crushing tissue and bones. This poleax has long langets and a rondel, or disk, which helped to protect the wielder's hands from enemy weapons that slid down the shaft.













Replica shaft .

#### LONG-HANDLED AX

**DATE** 13th century

ORIGIN Europe

In the 11th century axes were used only by the English Saxons and Scandinavian warriors, but during the next two centuries, the weapon became common throughout continental Europe. This long-handled ax was used with both hands.

#### SHORT AX

DATE 14th century

#### ORIGIN Europe

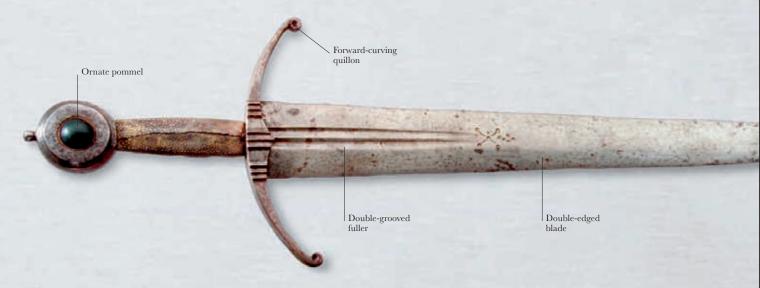
Although heavily rusted, the highly curved blade of this single-handed ax is clearly visible. Unlike other axes, where the shaft was inserted into the axhead's socket, this example has a tanglike projection that was forced over the shaft. Another distinctive feature is the spike at the back.



# MEDIEVAL FIGHT BOOKS

Frequent wars in 14th-century Europe led to a growing interest in acquiring fighting skills. As a result, techniques of armed fighting began to be steadily recorded in fight books—practical combat guides for professional soldiers, or men-at-arms. By using illustrations as well as text, such books offered step-by-step instructions on fighting techniques. For example, to master an arming sword (below), a swordsman could refer to a fight

book for instructions on how to parry, stab, slash, and fight against armored and polearm-equipped opponents. Volumes ranged from short pamphlets to major works that included all styles of fighting. The most impressive volumes came from Italy and Germany, such as *Fior di Battaglia* ("flower of battle") by Fiore dei Liberi and a series of *fechtbuchs* ("fight books") by Hans Talhoffer, a German fencing master.





### AZTEC BLADES

Warfare in the Aztec Empire, which covered much of what is now Mexico, was driven by the need for a regular supply of prisoners for human sacrifice. Although the Aztecs had bows, slings, and throwing spears, they preferred to use close-quarters cutting weapons to disable an enemy, often by a blow to the legs. For their blades, the Aztecs made extensive use of obsidian (a volcanic glass) and flint, both of which could be honed to razorlike sharpness, although the blades could be easily damaged. Ultimately, the Aztecs' Stone-Age weaponry proved no match for the steel and gunpowder of the Spanish invaders who conquered the region in the 16th century.

#### FLINT KNIVES

DATE

c. 1500

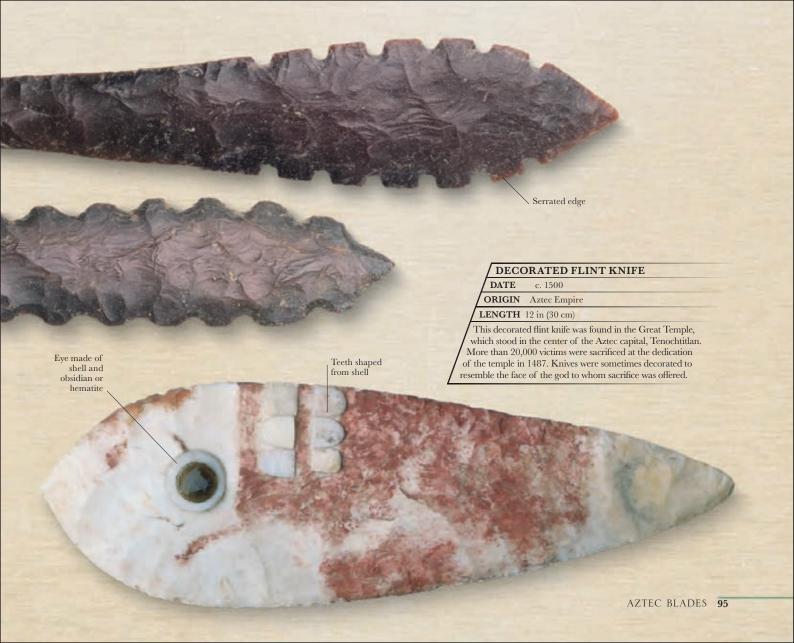
ORIGIN Aztec Empire

LENGTH 12 in (30 cm)

Practical and easy to make by flaking (pp. 8-9), flint knives like these two examples had many purposes in Aztec society. However, they were most frequently used by priests for carrying out human sacrifice, in preference to obsidian knives, because obsidian, although sharper than flint, is extremely brittle.









#### MAQUAHUITL (CLUB)

DATE

c. 1500

ORIGIN Aztec Empire

**LENGTH** 30 in (75 cm)

The main close-quarters weapon was a wooden club with sharp obsidian teeth wedged into its head. Known as a maquahuit, it was wielded like a sword, delivering a razorlike cut that could sever a horse's head.

#### ORNATE CHALCEDONY KNIFE

DATE

c. 1500

ORIGIN Aztec Empire

**LENGTH** 12½ in (31.7 cm)

The handle of this sacrificial knife represents an eagle warrior, one of the prestigious orders of Aztec fighting men, and is decorated with colorful mosaic of stones and shell. The blade is made of chalcedony, a type of quartz.

Mosaic inlay of turquoise, shell, and malachite

Wooden handle carved into shape of crouching figure

Stone blade made of chalcedony

# JAPANESE AND CHINESE BLADES

The swords used by Japanese samurai warriors were among the finest cutting weapons ever made. Japanese swordsmiths used a complex process of smelting, forging, and hammering to create curved blades that were immensely hard, but not brittle. The steel of the sharp cutting edge was specially treated by a process known as quenching, in which the swordsmith wrapped the blade with clay but left the cutting edge exposed. The blade was then heated and dipped in a water bath; the rapid cooling ensured full hardness to the cutting edge. The relatively softer, flat *mune*, or back of the blade, was used to block blows, since the samurai carried no shield. Chinese swords, which were sometimes straight rather than curved, had little of the almost mystical prestige of their Japanese equivalents.



Leather-wrapped, two-handed hilt

> Gilt iron decoration

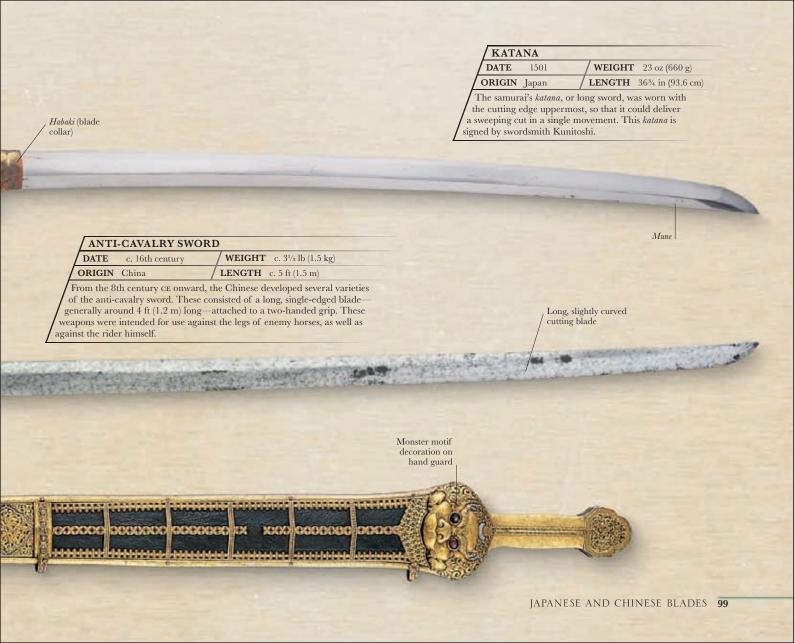
CHINESE SWORD IN SCABBARD

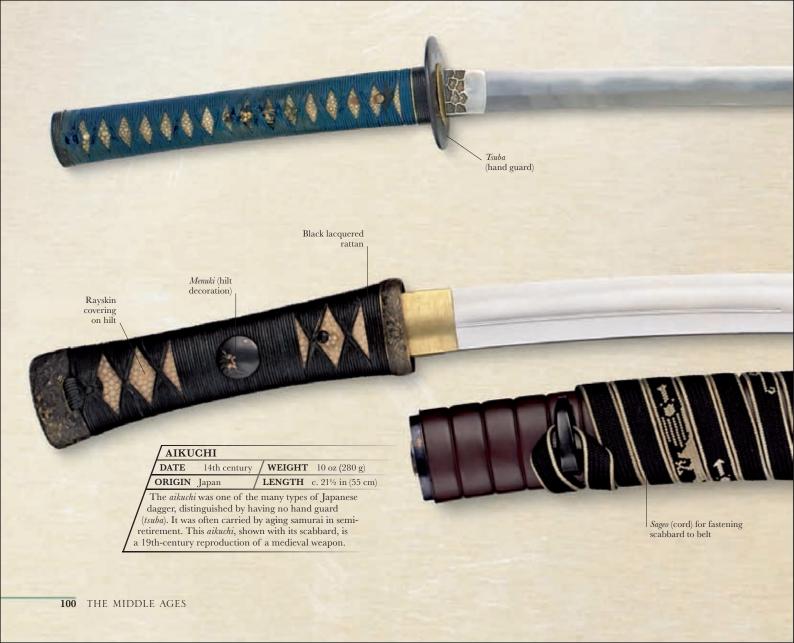
 DATE
 c. 1570
 WEIGHT
 3 lb (1.30 kg)

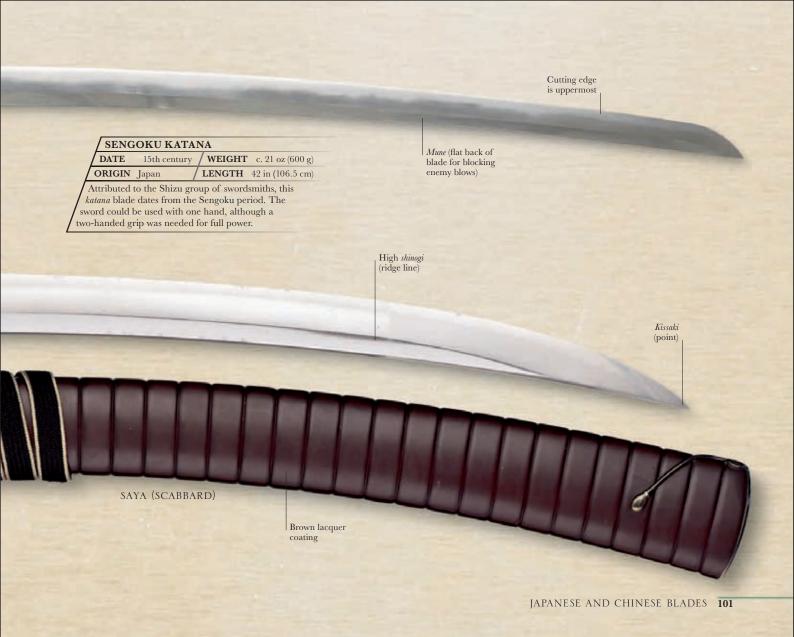
 ORIGIN
 China
 LENGTH
 35½ in (90.3 cm)

This straight Chinese sword, decorated with Buddhist emblems, was made for presentation to a Tibetan monastery, hence its elaborate details. The scabbard is made of wood, but covered with gilt iron decoration.













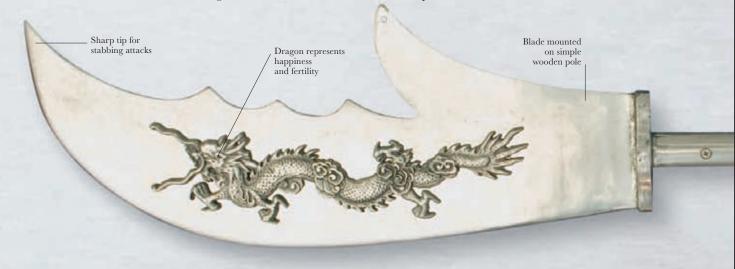
# THE ADVANTAGE OF THE SAMURAI SWORD WAS THAT IT COULD BE DRAWN QUICKLY AND DELIVER A KILLING BLOW AS IT WAS DRAWN.



# SHAOLIN MONK

The Shaolin monks' spiritual center lies at the Shaolin temple at Song Shan, Henan Province, China. Legend has it that the fighting skills of the Shaolin monks stretch back to the 6th century ce. The Indian Buddhist monk Bodhidharma, who became temple master in 512 ce, is believed to have taught the monks techniques to improve their skills in self-defense, much needed in bandit-ridden China. Legend or not, what is

certain is that, by the late medieval period, the Shaolin monks were accomplished practitioners of martial arts, skilled with a variety of bladed weapons as well as in unarmed combat. A collection of 18 original Shaolin weapons is used to this day by the Shaolin monks, including the *guan dao* shown here, the *san jian liang ren dao* (three-pointed halberd), and the crescent-shaped *zi-wou* knife.





GUAN DAO

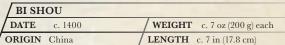
 DATE
 10th century
 WEIGHT c. 11 lb (5 kg)

 ORIGIN
 China
 LENGTH c. 6 ft (1.8 m)

The guan dao, also known as a yan yue dao ("reclining Moon blade"), is a form of halberd. Some medieval versions weighed more than 44 lb (20 kg), although most were purely training weapons. The example here is a replica.

#### KUNG FU FIGHTING

A modern warrior monk of the Shaolin Temple displays his *kung fu* skills on the Song Shan Mountain near the temple. He wields the *guan dao*, which requires tremendous strength in the arms and shoulders, as well as a good sense of balance.

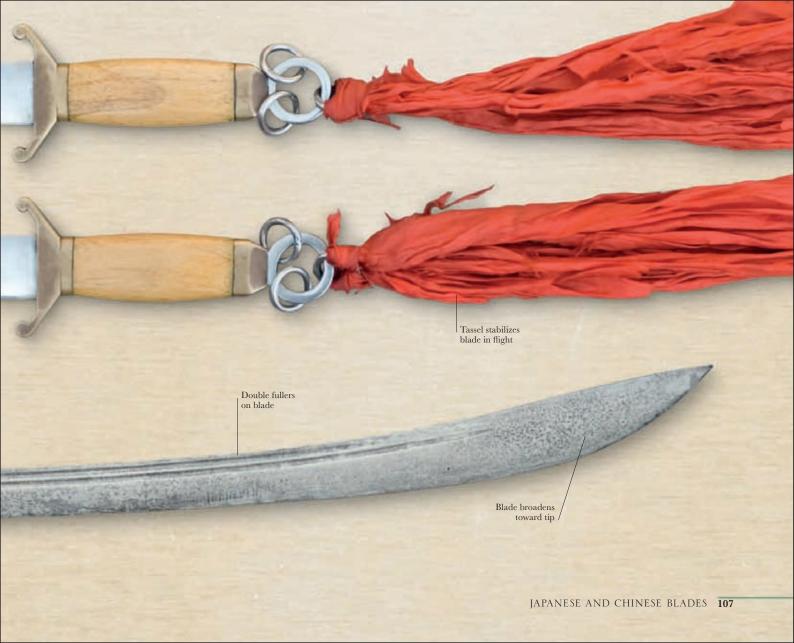


Known as bi shou, these daggers were often carried in pairs. They could easily be hidden inside a pair of boots or a jacket and were either thrown or used for stabbing. The tassel stabilized the dagger in flight, improving its accuracy, but slowed it down, limiting its penetration. These examples are modern replicas.









# ASIAN STAFF WEAPONS

Medieval Asian armies deployed a wide range of staff weapons, including maces (clubs with metal heads), long-handled battle-axes, and weapons with blades or pointed heads. Some of these were little more than developments of agricultural implements or simple clubs; nevertheless, they were highly effective in face-to-face combat. Although gradually rendered obsolete by gunpowder, many such staff weapons remained in use in some Asian armies into the 18th and even 19th centuries.

# A WARRIOR WIELDING A SOLID IRON MACE REQUIRED GREAT UPPER-BODY STRENGTH AND A WIDE-LEGGED STANCE FOR BALANCE.

**FULL VIEW** 

Iron shaft reeded with raised ribs

Hole for peg to fix tang to shaft

FULL VIEW

MOGUL MACE Chiseled WEIGHT 31/4 lb (1.5 kg) DATE 18th century decorative knob ORIGIN India **LENGTH** 30½ in (77.5 cm) This 16th-century-style mace is in essence little more than a curved solid iron bar, but it could undoubtedly deliver a powerful blow if wielded energetically. Maces of this kind were used by Mogul soldiers during the conquest of India in the 1500s. They are recognizable in many miniature paintings that depict the Moguls at war. Curved head Curved steel blade NAGINATA c. 1600-1700 DATE WEIGHT Blade: 22 oz (620 g) **LENGTH** 31/4 ft (1.05 m) ORIGIN Japan The naginata, a Japanese cousin of the European glaive (pp. 88-89), consists of a long. curved blade attached to a wooden shaft. It was a standard weapon of foot soldiers in medieval Japan, but was especially associated with fighting monks, the sohei. They are described by Japanese chroniclers as entering battle "whirling their naginata like waterwheels."





### ARROWS AND BOLTS

During the Middle Ages, the design of arrowheads was refined, with improved penetration and injury capabilities in warfare and hunting. Penetration through armor came from the bodkin point, a small arrowhead with a square cross-section, while barbed arrows were designed to deliver severe internal injuries. From the 12th century, the crossbow and the longbow became popular in Europe. The crossbow, which was invented in China, fired short, powerful bolts. It was highly accurate and effective against armored knights and in siege warfare. But it had a slower rate of fire than the longbow, an improved version of the ordinary bow.

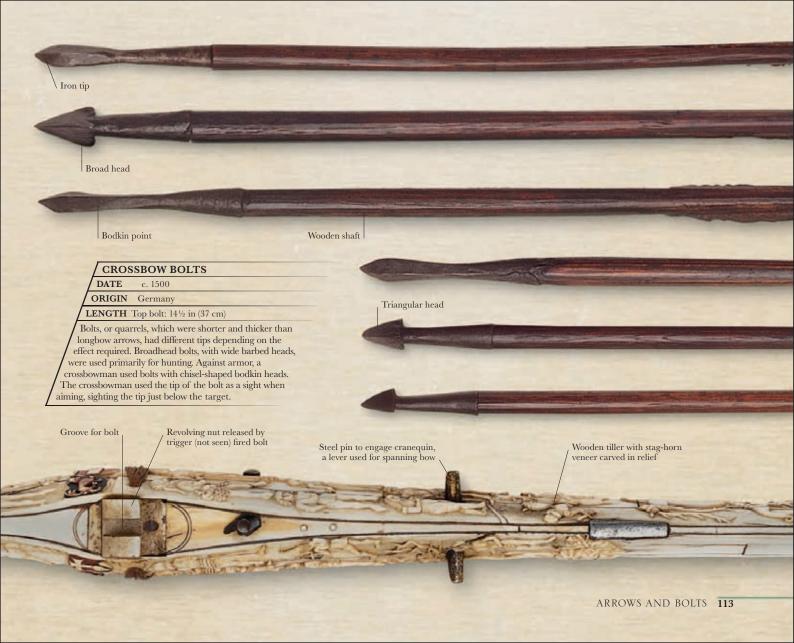
HUNTING CROSSBOW						
DATE	c. 1460	/ WEIGHT	9¾ lb (4.4			

 DATE
 c. 1460
 WEIGHT
 9% lb (4.4 kg)

 ORIGIN
 Europe
 LENGTH
 28% in (72 cm)

The crossbow was an excellent weapon for hunting because the hunter could carry the bow predrawn and loaded with a bolt, ready to shoot. It was also powerful enough to penetrate deep into an animal's body.





# BLADE VS. BOW

With improvements in bows and arrows, swordsmen had to develop new tactics to counter the growing reach of archers using longbows and crossbows. For example, during the Hundred Years' War between England and France (1337–1453), English or Welsh longbow archers could fire 12 arrows a minute at ranges of up to 650 ft (200 m). They could even penetrate plate armor with the right type of arrowhead. For the sword-armed cavalry facing them, the obvious tactical solution was to cross open ground quickly, to minimize the risk of exposure to enemy arrows. Archers

wore little armor, since they were not expected to engage in close-quarters combat. So if a knight could get close to an archer, his sword skills could be very effective. The long bastard sword shown below would be ideal against a mixed force of archers, infantry, and knights. Gripped one-handed, it could be used against lightly armored archers from horseback, while a two-handed grip gave extra power for thrusting attacks against heavily armored opponents. Ultimately, however, projectile weapons signaled the long-term decline of sword-armed cavalry.

Broad fuller to reduce weight and increase flexible strength

. Straight cross-guard

Twisted pommel /







HE HISTORY OF SWORDMAKING reached its peak in the period between 1500 and 1775. Despite the rising popularity and importance of firearms, introduced into warfare during the 14th century, the sword continued to be the ultimate weapon of the military elite. It also became a striking element of civilian fashion in many parts of the world. The period also saw both swords and daggers evolve into a bewildering variety of types. However, by the end of the 18th century, their popularity and use had started to decline, and swords would never again have such influence in warfare or culture.



The diversification in sword types and design from the 16th to the 18th centuries was particularly pronounced in Europe. The long, narrow, and sharp-pointed rapier became one of the defining swords of this period, with its elaborate hilt designs and straight, thrusting blades. Rapiers were worn by both officers and gentlemen, though the blades of rapiers worn by the latter tended to be more slender and lighter than the military equivalents. During the 17th century, the smallsword emerged as the fashion accessory of choice. It was a lighter form of the rapier, and was characterized by a plainer hilt with a U-shaped knuckle

guard and simple shell guard to protect the wielder's hand. The smallsword was a perfect thrusting sword, and soon became the preferred weapon for duels. However, rapiers and smallswords were not the only two blades on offer during this period. In Eastern Europe, proximity to the Islamic Middle East led to the introduction of the curved swords called sabers, which soon became popular. During the 17th and 18th centuries, sabers also found their way into the cavalry weaponry of Western armies. Originally produced for hunting, the robust hanger swords—so called because of the way they were hung from the belt-were also becoming part of standard military weaponry in several armies during the 18th century. Swords were also manufactured specifically for the act of execution. These featured a two-handed grip and a broad, long blade with a rounded or even a square tip—there was no need for thrusting when beheading a prisoner.



The diversity of swords during this period is also reflected in a complicated range of hilt designs. Designs ranged from a hanger sword with simple S-shaped quillons, to swords with basket hilts that encased the user's hand in a protective cage of metalwork. The designs of rapiers were particularly flamboyant, with various shells, cups, and plates acting as a hand guard. The quillons were sometimes twisted to form multistrand knuckle guards.



Experimentation and diversity were not confined to Europe. In Africa, for example, bladed weaponry ranged from high-quality swords inspired by European designs to a mass of tribal ceremonial and combat weapons with no equivalents elsewhere. Many knives had broad, organic shapes, or featured multiple points. There are more than 100 different types of African throwing knife alone. South and Southeast Asian blades also show distinctive national or regional forms, such as the undulating Malayan kris dagger. In India and the Middle East, the highly curved shamshir, a heavy slashing sword, became a popular weapon in the 16th and 17th centuries. The shamshir and other Islamic swords were often decorated with gold or silver inlay-work, scrollwork, and religious text. Japan continued its fine tradition of samurai sword production, albeit under the restrictive rule of the Tokugawa Shogunate (1603-1868), also called the Edo period, which limited sword ownership. Across the world, swordsmiths took great pride in their

craft and, on the wave of rising affluence brought about by international and colonial trade, produced some of the finest blades in history.



During this period, a critical development had started to take place. The 1642 memoirs of French army marshal Jacques de Puységur refer to soldiers using bayonets. Bayonets were blades of varying lengths that could be attached to the muzzle of a gun, effectively converting the gun into a polearm. Early bayonets were of a plug variety—they fit straight into the gun's muzzle, which prevented the gun from being fired. Soon, socket bayonets followed—these had a ring to slot them around the muzzle, allowing the gun to be fired even with the bayonet attached. By the end of the 18th century, when the use of firearms and artillery had become widespread, the foot soldier could wield a gun and a blade in a single weapon.

### THE AGE OF **SWORDSMANSHIP**

# TWO-HANDED SWORDS

During the Middle Ages most infantry swords were relatively light and easy to wield, but by the late 15th century a distinctive group of larger and heavier weapons grew in popularity, particularly in Germany. These two-handed swords were known as doppelhänder (double-hander) or beidenhände (both-hander) and were specialized weapons. The Landsknecht mercenaries (pp. 166–67) who used them were called doppelsöldner and received double pay, but they earned it. They were expected to hack their way into enemy pike units (pp. 176–77). The double-

-

Cross-guard

Wooden grip

Spherical

pommel

Wheel-shaped pommel

Long, broad, double-edged blade

handed swords were also used

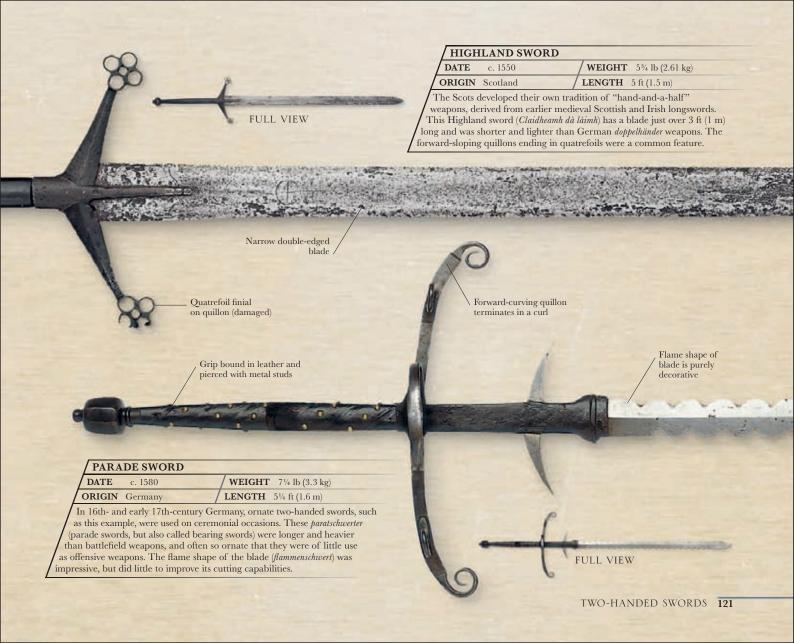
for ceremonial duties and executions.

#### SCOTTISH CLAYMORE

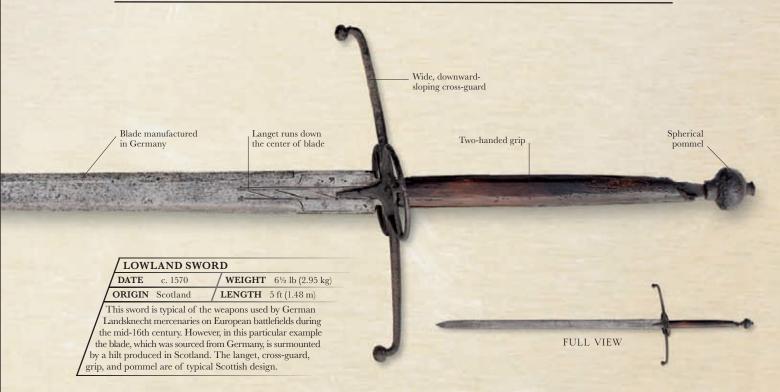
 DATE
 c. 1620
 WEIGHT
 5½ lb (2.5 kg)

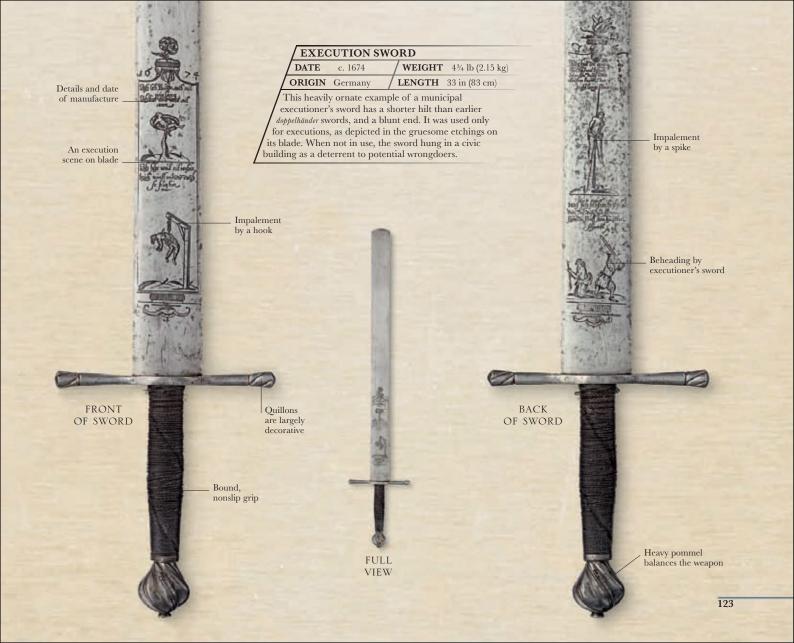
 ORIGIN
 Scotland
 LENGTH
 c. 5 ft (1.5 m)

This two-handed sword is the true Scottish claymore, the great double-edged broadsword used by Scottish Highlanders from the 15th to the early 17th century. The word "claymore" comes from the Gaelic claidheamohmor, meaning "great sword."



# FOR EXECUTION BY SWORD THE VICTIM KNELT IN FRONT OF THE SWORDSMAN, WHO DELIVERED A TWO-HANDED STRIKE TO THE NECK. REMOVING THE HEAD WITH A SINGLE BLOW WAS THE MARK OF AN EXPERT EXECUTIONER.







The military revolution that followed the Renaissance meant that firepower was becoming increasingly important, but *arme blanche* (cold steel) still remained a battle-winning weapon, particularly for cavalry (horse-mounted soldiers). From the 16th century onward, most infantry (foot soldier) swords tended to be used as thrusting weapons. But the cavalry still needed to slash downward at infantry, so they favored larger, double-edged swords that could be used equally well against mounted and dismounted opponents. However, standardized military sword patterns now emphasized style as much as practicality. They were more elegant but probably no less deadly.

Quillon affords extra protection to swordsman's hand

	<b>37A</b>	DV	SWC	חמו
C i A	A V A I	KY	SVV	JK IJ

 DATE
 c. 1630
 WEIGHT
 3 lb (1.33 kg)

 ORIGIN
 Sweden
 LENGTH
 3½ ft (1.08 m)

Cavalrymen during the 16th and 17th centuries relied on variants of the broadsword, such as this finely engraved Swedish weapon. A brass-plated ring guard protected the swordsman's hand, while the simply shaped pommel is reminiscent of late medieval weapons. The straight blade could be used with equal efficiency as a cutting or thrusting weapon.

Simple brass-plated steel ring guard

> FULL VIEW

Intricate engraving suggests weapon belonged to an officer

#### **INFANTRY SWORD**

DATE c. 1500

**WEIGHT** 32 oz (910 g)

ORIGIN Switzerland

Silver-encrusted hilt

**LENGTH** 351/4 in (90 cm)

Compared to the basket-hilted sword, this weapon offered little protection to the swordsman. However, its grip allowed it to be wielded by both hands, a feature more useful to a foot soldier than a cavalry officer.

Curves on quillon could trap an opponent's blade

**FULL VIEW** 

Simple wooden grip allows single- or double-handed hold Religious icons often decorated the blades of Renaissance weapons

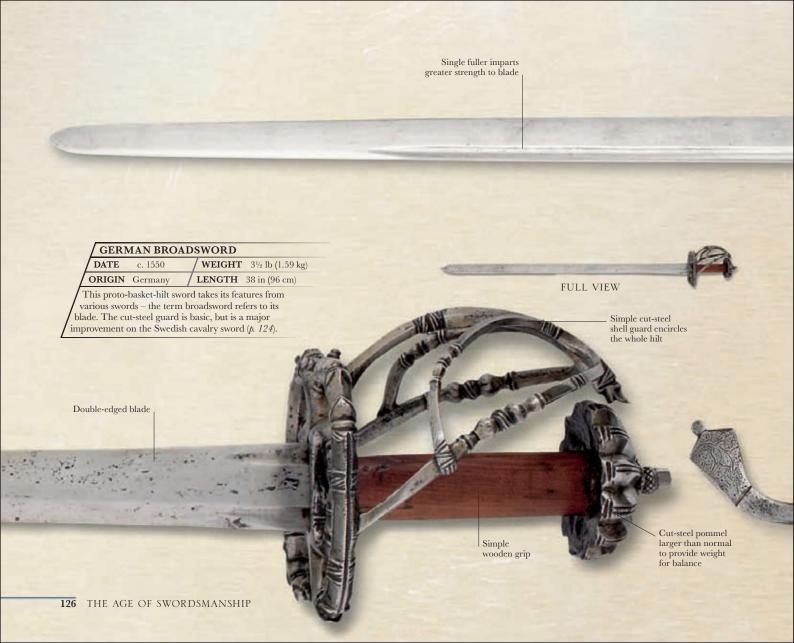
#### **FULL VIEW**

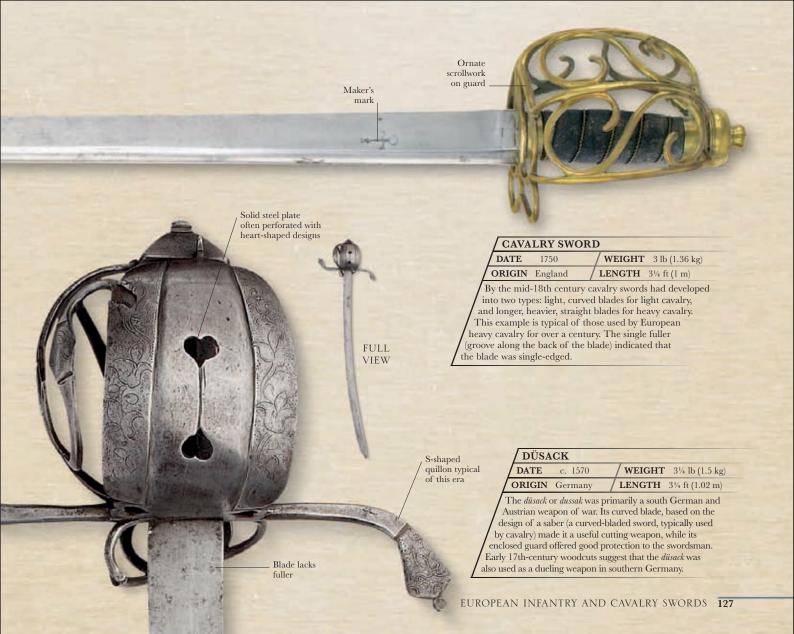
Three fullers on blade

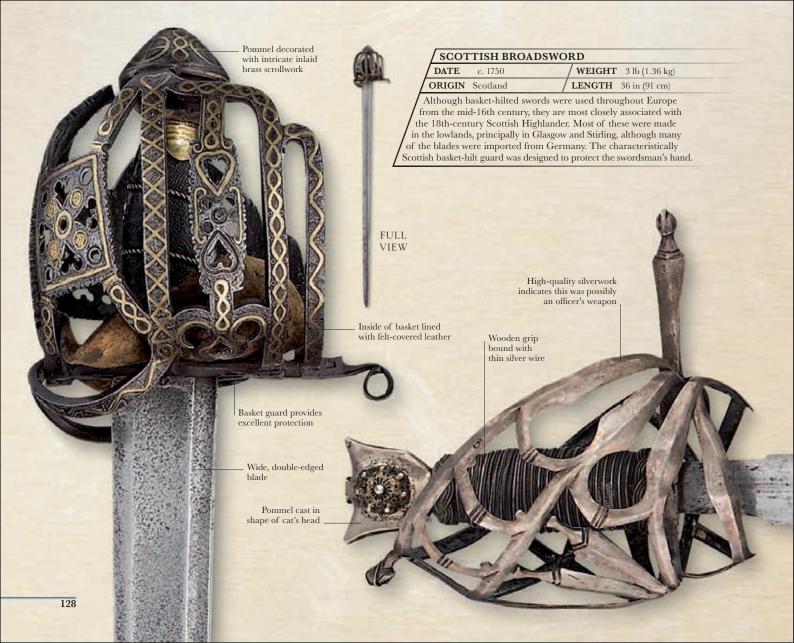
#### BASKET-HILTED SWORD

Hilt: c. 1540 **WEIGHT** 3 lb (1.36 kg) DATE ORIGIN England **LENGTH** 31/4 ft (1.04 m)

This broadsword (a sword with wide, double-edged blade) consists of an early 17th-century German blade, which is attached to an English basket hilt. The basket hilt dates from over a century before the blade was cast.







#### **INFANTRY HANGER** c. 1760-1820 WEIGHT 29 oz (840 g) DATE ORIGIN England **LENGTH** 32 in (79.7 cm) While most infantrymen relied on the bayonet for **FULL VIEW** combat, many foot troops were also issued with a hanger, a crude military variant of a short hunting sword. This almost always had a straight or a slightly curved blade. The hanger was more practical in a Grips and guards difficult terrain than conventional longer swords. usually made of brass Single-edged blade shorter than typical cavalry sword SCHIAVONA SWORD DATE c. 1780 WEIGHT 21/4 lb (1.02 kg) ORIGIN Italy **LENGTH** 31/4 ft (1.05 m) This delicate, characteristically Venetian broadsword is known as a schiavona, Simple two-bar meaning "Slavonic" in Italian. The term roughly refers to the Dalmatian guard troops who primarily used this sword while in service of the Venetian FULL VIEW Republic. Schiavonas have a distinctive form of basket hilt and often feature

Double-edged blade inscribed with the slogan In Mene ("in mind")

a pommel resembling the head of a cat, an allusion to agility and stealth.



Steel hilt decorated with simple cast scrollwork

CAVALRY SWORD DATE

c. 1775

WEIGHT 30 oz (850 g) ORIGIN England **LENGTH** 33 in (83.8 cm)

This sword is typical of the single-edged swords carried by heavy cavalry for much of the 18th century. While cavalrymen still used swords to deliver swinging cuts, it was considered more practical for heavy cavalry to thrust at the enemy, that is, use the point of the sword instead of the edge. This weapon was dual purpose, without being particularly well suited for either type of swordplay. After 1780, most British Army swords were designed to set patterns.

Decoration on hilt shows sword belonged to an officer

> Style of guard in contemporary rococo design



Suspension ring to attach scabbard to belt loop or straps

#### MORTUARY SWORD

 DATE
 1640-60
 WEIGHT
 32 oz (910 g)

 ORIGIN
 England/Germany
 LENGTH
 36 in (91 cm)

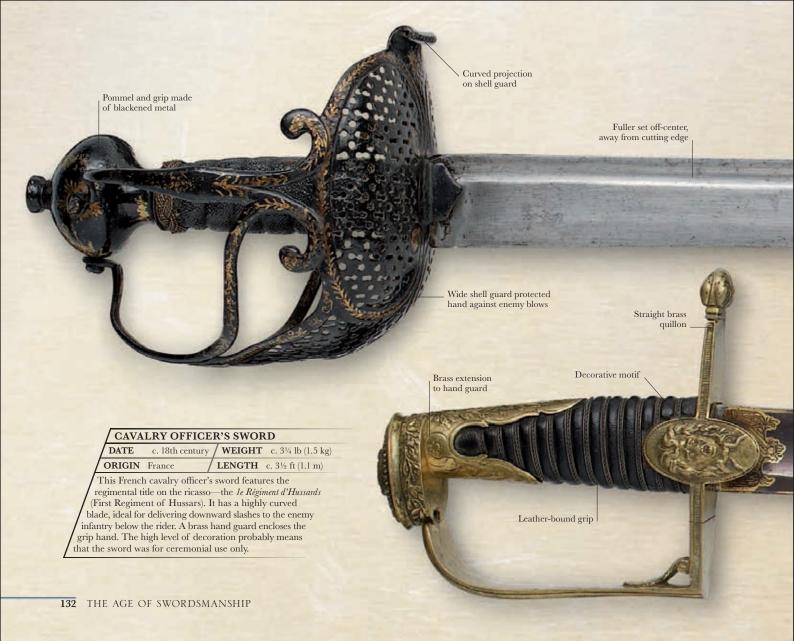
Double-edged blade with two fullers to reduce weight

The name of this sword has two possible derivations. It could either be named because of the hilt's resemblance to the human rib cage, or derived from a 19th-century term related to the supposed likeness of portrait heads on the hilt to the executed King Charles I. These swords were widely used by cavalrymen during the English Civil War that preceded the execution of the king in 1649. Although the blade was made in Germany, the hilt of this weapon is of a uniquely English design.

# FRENCH SABER DATE 1802 / WEIGHT c. 2½ lb (1.2 kg) ORIGIN France / LENGTH c. 29 in (73.6 cm) French light cavalry liked to thrust with the point of the blade as

French light cavalry liked to thrust with the point of the blade as well as deliver swinging cuts. As a result, their sabers had narrower blades than their British counterparts. This is an XI model, introduced in 1802–03. The steel scabbard is tougher than earlier brass and leather examples.

Polished steel





**FULL VIEW** 

#### **OLIVER CROMWELL'S SWORD**

DATE 17th century **WEIGHT** c. 3 lb (1.4 kg) ORIGIN Britain **LENGTH** c. 3½ ft (1.1 m)

This sword is reputed to have been carried by Oliver Cromwell, the famous English soldier and statesman, at the battle of Drogheda in 1649. It features an elaborate "mortuary style" hilt. It has a wire-wound sharkskin grip, which would have provided a solid grip for sweaty hands during actual combat.

# I FORBADE THEM TO SPARE ANY THAT WERE IN ARMS... THEY PUT TO THE SWORD

CROMWELL ON THE SLAUGHTER AT DROGHEDA, IRELAND, 1649



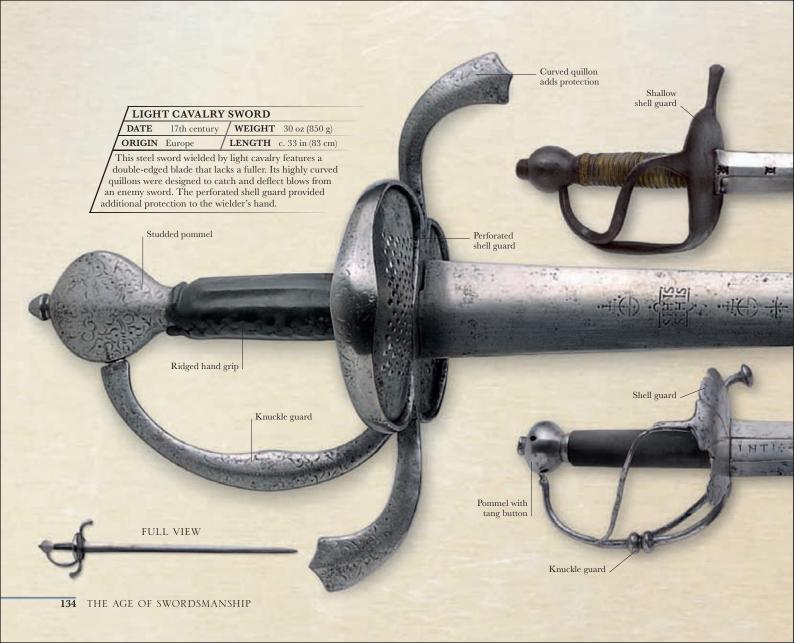


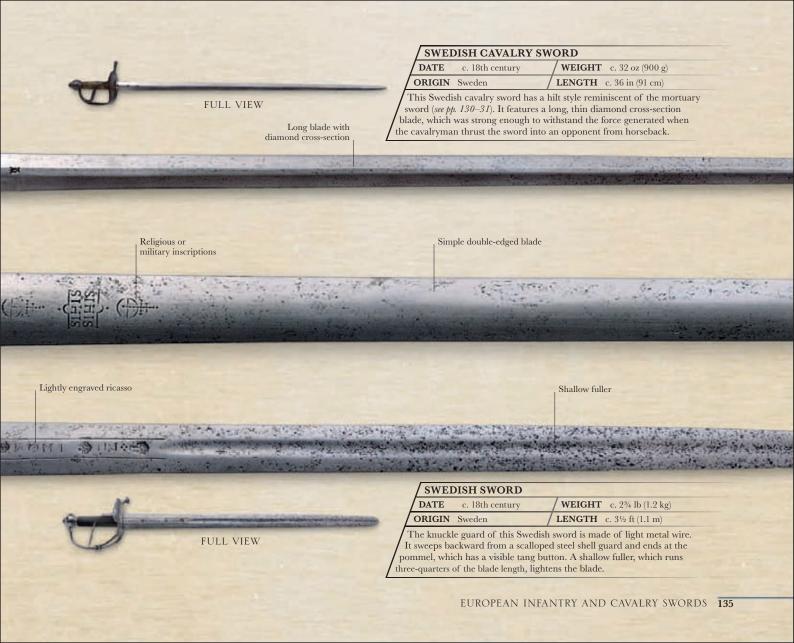
Regimental











# DUELING

Rapiers, such as the swept-hilt

smallswords (pp. 142-45) were

Pommel could be used as improvised striking weapon

version shown below, and

Dueling—the settling of a dispute or matter of honor through individual combat—has ancient origins. The Vikings were known to engage in *holmanga*, duels in which two fighters slashed at one another until blood was drawn or money offered in settlement. In Europe, dueling thrived from the Middle Ages until the late 19th century, although from the 17th century it was increasingly prohibited by law in many countries.

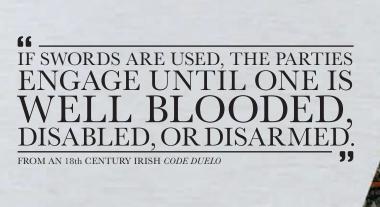
common dueling weapons, sometimes provided in paired sets to duelists by their assistants, who would check the weapons to ensure neither party had an unfair advantage over the other.



The rules of a duel were fairly simple. After one party had issued a formal challenge, the date, time, and venue would be agreed to. The fight was usually amateur, since not everyone was a swordsman. It would be stopped, by agreement, at either first blood drawn, serious injury, or death. *Codes duelo* (dueling codes) were written to lay down a strict etiquette for these events.

Intricate swept-hilt guard

Rigid blade of diamond cross-section



#### SWEPT-HILT RAPIER

**WEIGHT** 23/4 lb (1.27 kg) DATE 1600-60

ORIGIN Europe **LENGTH** 41/4 ft (1.3 m) This classic infantry weapon of the 17th century was designed purely as a thrusting weapon. Swordplay

using the point of the sword was considered the art of a gentleman—in addition to being a military weapon, the rapier was the duelist's weapon of choice, until it was

replaced by the pistol in the late 17th century.

#### PARISIAN DUEL

This illustration by French artist Maurice Leloir (1851-1940) shows two men fighting a duel using rapiers. Since not all citizens were trained in swordplay, some accounts of duels mention little more than two people stabbing each another until one died.



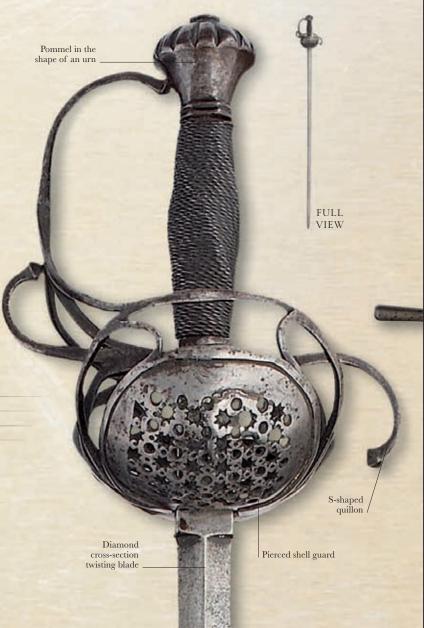
# EUROPEAN RAPIERS

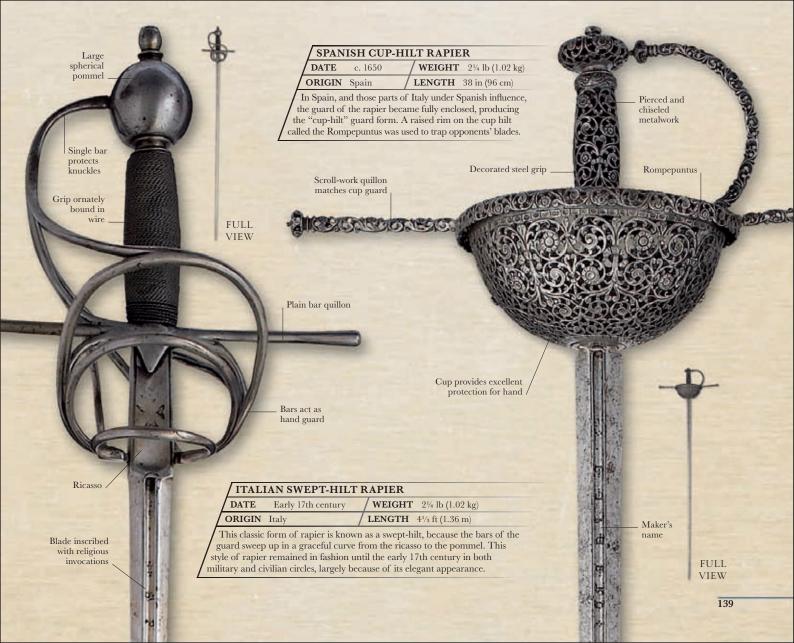
In the 16th century the rapier became the status symbol of a swordsman, showing that he was a man of substance and knew how to use his sword. The term is derived from the 15th-century Spanish term *espada ropera*, or "sword of the robes," meaning the weapon of a gentleman. By 1500, the rapier was used throughout Europe, and it would remain the premier gentleman's sword until the late 17th century. Although it was certainly used on the battlefield, it was more readily associated with court, dueling, and fashion—hence the tendency toward delicate, intricate designs.

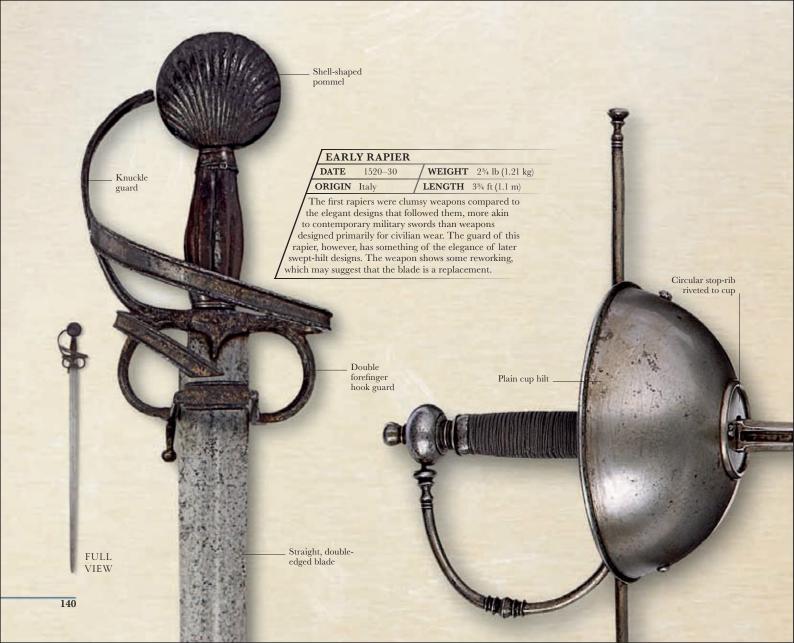
/	PAPPENHEIM-HILT RAPIER
	TALLENITE WITH KALLEN

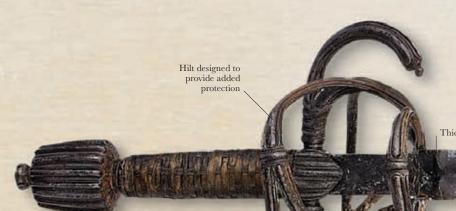
	/					
/	DATE	1630	19.50	WEIGHT	2¾ lb (1.25 kg)	
7	ORIGIN	Germany	/	LENGTH	4½ in (1.4 m)	

This style of rapier was popularized by Count Pappenheim, an imperial general of the Thirty Years' War (1618–48), a war that involved most of the countries of Europe at some point. Designed for military use, the Pappenheim-hilt rapier was soon copied throughout Europe, since its two pierced shell guards provided good protection for the swordsman.









1

**FULL VIEW** 

Thickened blade

ENGLISH SWEPT-HILT RAPIER

 DATE
 1590
 WEIGHT
 3 lb (1.39 kg)

 ORIGIN
 England
 LENGTH
 50½ in (128 cm)

Another variant of a swept-hilt rapier design, this weapon might be less elegant than its counterparts, but its small, perforated shell guards offered better protection. In this example the grip is bound in woven wire, which suggests this rapier was made as a dress sword rather than for military use.

Swept hilt of chiseled iron

Shallow diamond cross-section blade

は一世の方と 上京を ~ 100mm 100

Simple ricasso

#### ITALIAN CUP-HILT RAPIER

	DATE	c. 1680		/ WEIGHT	32 oz (900 g)
/	ORIGIN	Italy	/	LENGTH	4 ft (1.2 m)

Unlike other rapiers, this weapon, belonging to a later period, was designed as a fencing piece rather than as a weapon, and hence denoted gentlemanly status. It has an extremely narrow diamond cross-section blade, and a simple, unadorned cup hilt.



**FULL VIEW** 

EUROPEAN SMALLSWORDS

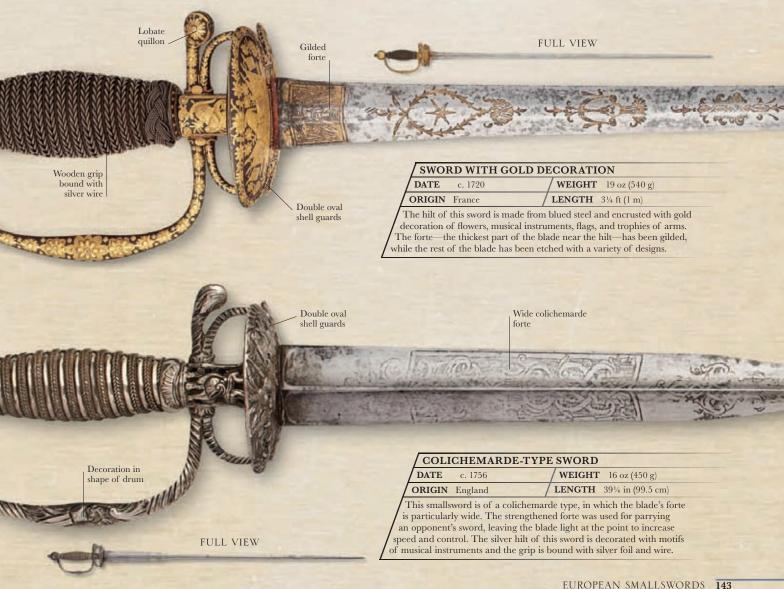
A development of the rapier, the smallsword came into general use in Western Europe toward the end of the 17th century. It was a civilian weapon—an essential item of dress for any gentleman that also acted as a dueling sword. Intended solely for thrusting, the smallsword typically had a stiff triangular blade, without sharpened edges, which in the hands of a skillful swordsman was a deadly fencing weapon. Although simple in overall design—the handguard consisting of a small cup, and finger and knuckle guards—many smallswords were magnificently decorated, reflecting the status of their owners.

Finger-guard branches

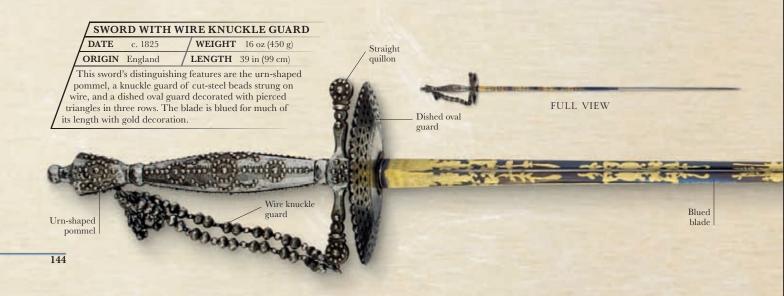
1	ETCHED SWORD			
Γ	DATE	c. 1720	/ WEIGHT	14 oz (400 g)
C	RIGIN	France /	LENGTH	34¾ in (88.5 cm)

This fine sword is decorated with hunting scenes of hounds and game etched in relief against a matte gold background. The steel hilt has a spherical pommel and button, and the grip is bound with silver ribbon and plated silver wire.











## EUROPEAN HUNTING SWORDS

During the 16th century, specialized hunting swords came into widespread use among Europe's aristocracy. The swords were short in length and often had a slightly curved, single-edged blade, typically of very robust design to cope with the rigors of hunting. For the most part, hunting swords were used to finish off an animal wounded by a spear or shot. In the case of boar swords, however, they might act as the primary weapon, the boar being killed from horseback by a single powerful thrust. Hunting swords were often elaborately decorated and frequently featured engraved scenes of the chase. During the 18th century, the hanger hunting sword, with its short, curved, single-edged blade, acted as a model for the ordinary soldier's fighting sword.

Cross-guard with acanthus leaf decoration

ITALIAN HUNTING HANGER

 DATE
 c. 1550
 WEIGHT
 3½ lb (1.68 kg)

 ORIGIN
 Italy
 LENGTH
 24 in (61 cm)

This magnificently decorated hanger may have belonged to Cosimo de Medici (1519–74). It was probably used in the hunting of large game such as wolves or bears. The sword is decorated with the Medici coat of arms and has extensive gilt work on the cross-guard and pommel.

Medici coat of arms

Single-edged blade

Gilt pommel in shape of lion's head

Curved quillon terminating in

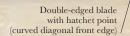
lion's head

Shell guard with lion motif





### IN 1600, SIR JOHN RAMSEY PLUNGED HIS HANGER INTO AN ASSASSIN WHO WAS ATTEMPTING TO KILL KING JAMES VI.



### STRAIGHT HANGER

**WEIGHT** 30 oz (860 g) DATE c. 1780 ORIGIN France **LENGTH** 29½ in (75 cm)

This short hunting sword from the late 18th century is of a more decorative than functional design. The brass guard and pommel are complemented by a straight, finely engraved, single-edged blade.

> Single-edged, pointed blade





### HUNTING CLEAVER

 DATE
 c. 1662
 WEIGHT
 2½ lb (1 kg)

 ORIGIN
 Germany
 LENGTH
 18 in (46 cm)

Once the hunting sword (p. 150) delivered the coup de grace to the wounded animal, the cleaver was used to dismember the carcass. This sharp, heavy blade would have little trouble in cutting through animal joints, including those of larger beasts such as boar and deer.



Maker's mark

Waker S mark

Sharp blade for trimming meat

CARVING KNIFE

Initials refer to the owner John George II, Elector of Saxony



Five meat-trimming utensils in side pocket



## COSSACK WARRIOR

The Cossacks were a people of Eurasian or Slavic descent who established themselves in Ukraine and southern Russia sometime around the 14th century. They produced talented mounted soldiers, who fought in various state armies as raiders, scouts, and light cavalry.



The Cossacks were known for their skill with a blade. Their traditional sword, the *shashka*, was a single-edged saber-like weapon with a curved pommel, but no hand guard. It was

ideal for slashing attacks while mounted on a horse, since the absence of a hand guard enabled the Cossack to make a cut using the full length of the blade. In addition to the *shashka*, the Cossacks also used a similarly designed short sword called a *kindjal*, which was used when fighting on foot or in close combat. Both of these slashing swords had very sharp points and could be used for thrusting, too. The Cossacks also used long lances, and although they quickly mastered muskets and rifles, Cossacks were known for their saber charges, which were recorded as late as World War I.





## EUROPEAN DAGGERS

The dagger's prime role as a weapon of self-defense continued into the 16th and 17th centuries, and some new variants evolved, including the left-hand dagger, also known as the *maingauche* (French for left hand). This dagger was held in the left hand, to complement a sword or rapier held in the right. Typically with forward-facing quillons, the left-hand dagger parried thrusts and cuts from the opponent's blade, and also acted as an offensive weapon in its own right. The bayonet, another modification of the dagger, continues to be used to this day.



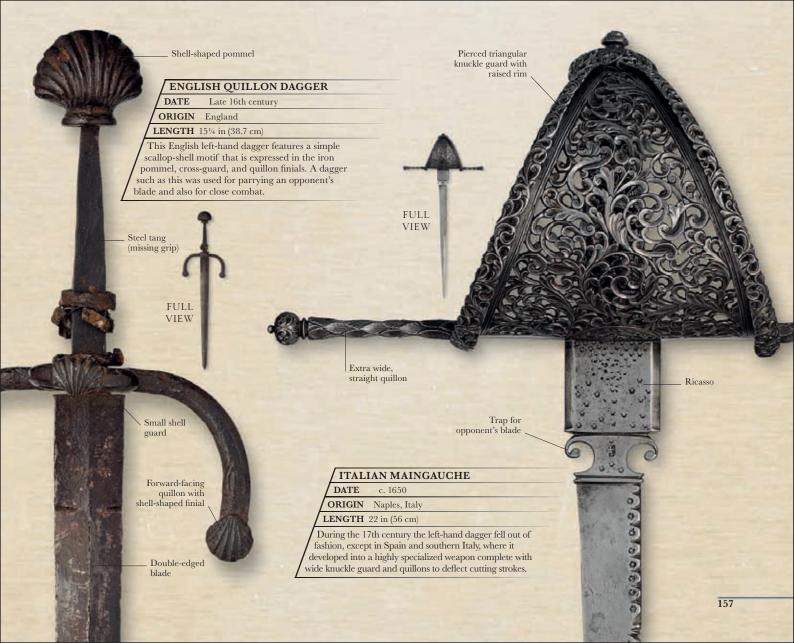
### QUILLON DAGGER

**DATE** c. 1600

ORIGIN Western Europe

**LENGTH** 16½ in (42 cm)

The forward-facing quillons of this left-hand dagger were intended to trap an opponent's blade so that it could be deflected safely. The ricasso here has two fullers to lighten what would otherwise be a weighty part of the blade.



Blade has three etched foliate panels

Double-edged blade with medial ridge

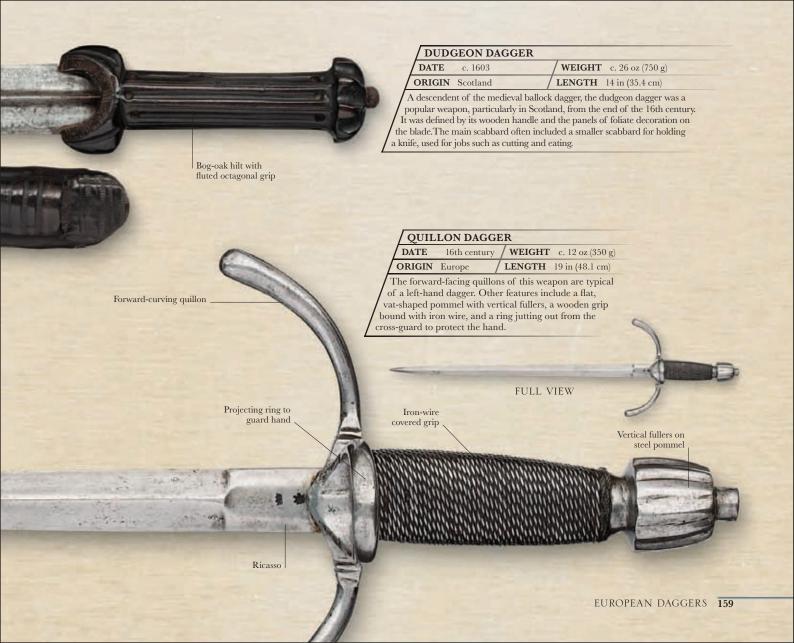
SCABBARD

Small scabbard for extra knife (missing)

## IT WAS A SERVICEABLE DUDGEON EITHER FOR FIGHTING OR FOR DRUDGING.

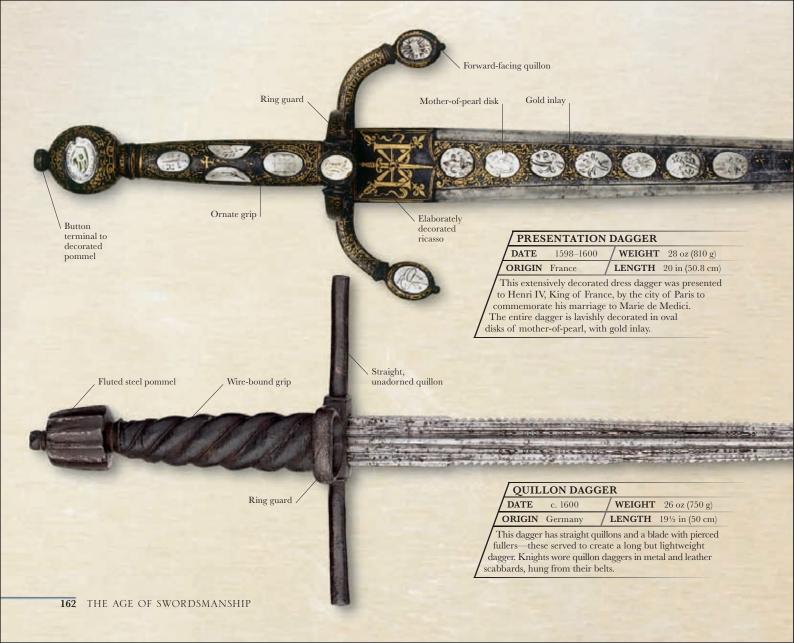
SAMUEL BUTLER (1612-1680), POET AND SATIRIST, IN THE MOCK-EPIC POEM HUDIBRAS, 1662-64

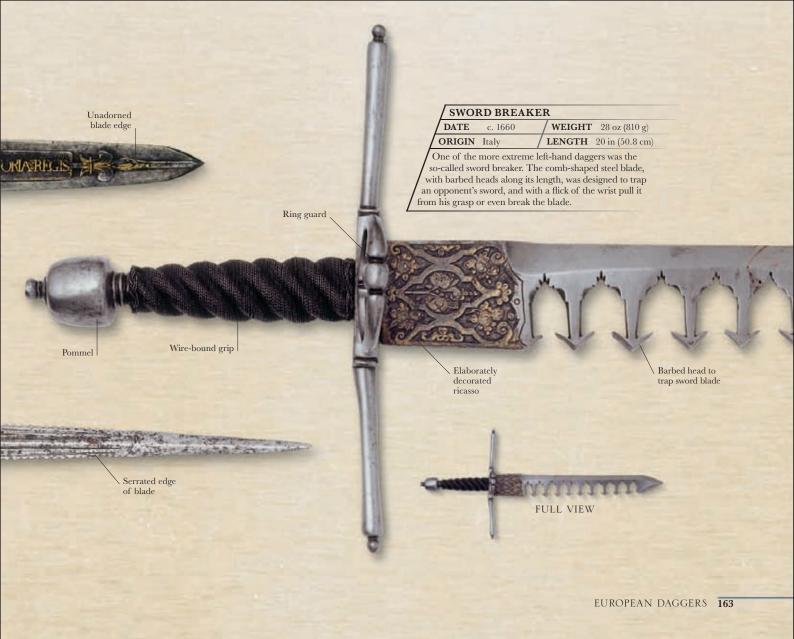
Diamond-section, double-edged blade

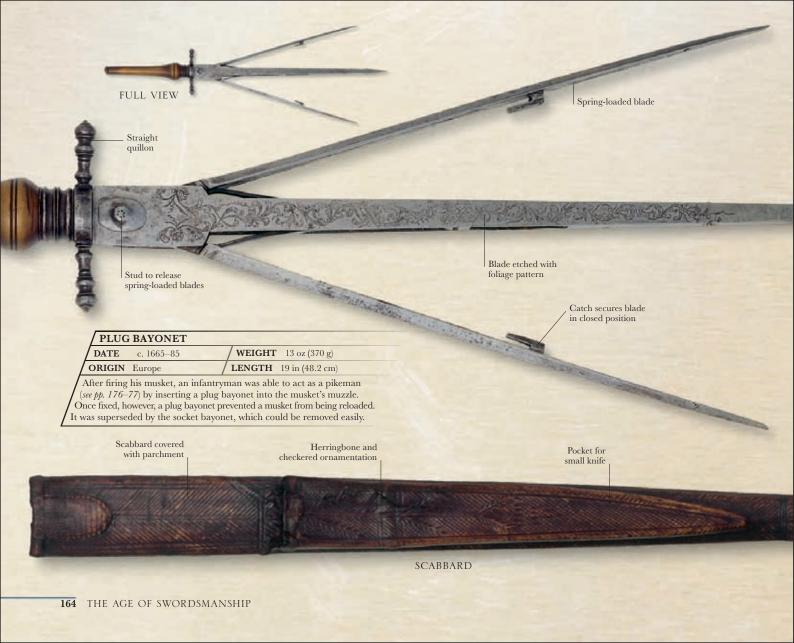














## LANDSKNECHT

The Landsknecht ("land servants") were German-speaking infantry formed under the authority of German Emperor Maximilian I in 1486, in response to threats from French and Burgundian mercenaries and Swiss pikemen.



Essentially swords for hire, the Landsknecht were lured into service from central and northern Europe by decent pay, opportunities to plunder, and a life of adventure. With their militarily unorthodox style of

> Long double-handed grip to help balance weight

ZWEIHANDER BROADSWORD

 DATE
 c. 1550
 WEIGHT
 7 lb (3.18 kg)

 ORIGIN
 Germany
 LENGTH
 4½ ft (1.4 m)

This two-handed broadsword was designed as a battlefield weapon and is of a type used by the Landsknecht. The sword has a blunt tip because it was intended to be used to hack through enemy units rather than to pierce its victims.

dress, the Landsknecht mercenaries cut a dash on the battlefield during the 15th and 16th centuries. Yet their flamboyant clothing masked the violent and unpredictable nature of these men. Most Landsknecht were armed with pikes (pp. 176–77), which were cheap to purchase, but doppelsöldner ("double-pay men") were specialists in using the Zweihander ("two-handed") broadsword to smash their way into enemy ranks. Landsknecht soldiers were loyal up to the point they were paid—Landsknecht bands sacked Rome in 1527 over unpaid wages.

Parrying lugs deflect enemy's sword strikes

Straight cross-guard



EUROPEAN ONE-HANDED STAFF WEAPONS

Single-handed staff weapons were developed for use by horsemen. These were simple but brutal weapons whose primary role was to fracture plate armor or inflict internal injuries to an opponent. The pick or spike of a war hammer was useful for penetrating gaps in enemy armor, while the flanges, or projections, on mace heads could be sharpened into bladelike edges. A crushing blow from a staff weapon would have dented the joints of an opponent's armor, limiting his ability to move and fight. Despite their clublike nature, many staff weapons were carried by men of high birth and, as a result, were finely crafted and elaborately decorated.

# THE PICK OF A BATTLE HAMMER COULD BECOME STUCK FAST IN THE BODY OF ITS VICTIM.





### HORSEMAN'S HAMMER

**WEIGHT** 11<sup>3</sup>/<sub>4</sub> lb (5.4 kg) DATE 16th century ORIGIN Germany **LENGTH** 21½ in (54.6 cm)

This four-sided hammer is counterbalanced by a longer pick that is also four-sided. The square-shaped socket extends into four langets that run down the sides of the wooden shaft. This war hammer would have been part of the armament of a cavalryman.

### HORSEMAN'S HAMMER

DATE **WEIGHT** Head: 29 oz (820 g) 16th century ORIGIN Europe **LENGTH** Head: 8½ in (21.5 cm)

Popular with cavalrymen for smashing plate armor, war hammers were also used by those fighting on foot in tournaments. During the 16th century, the size of the pick was increased, while the hammer was made smaller. This suggested a more central role for the pick in combat.



**FULL VIEW** 

#### MACE WITH FLANGED HEAD

 DATE
 16th century
 WEIGHT
 3½ lb (1.56 kg)

 ORIGIN
 Europe
 LENGTH
 24¾ in (62.9 cm)

From the late 15th century, most maces were made of steel, with a number of flanges on the mace head—seven was a common number. Each flange was attached to a central tubular core by brazing, in which different metal parts were joined together by fusing a layer of brass between the adjoining surfaces.



### MACE WITH CONICAL FINIAL

 DATE
 16th century
 WEIGHT
 3½ lb (1.56 kg)

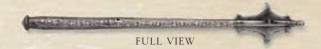
 ORIGIN
 Europe
 LENGTH
 23 in (60 cm)

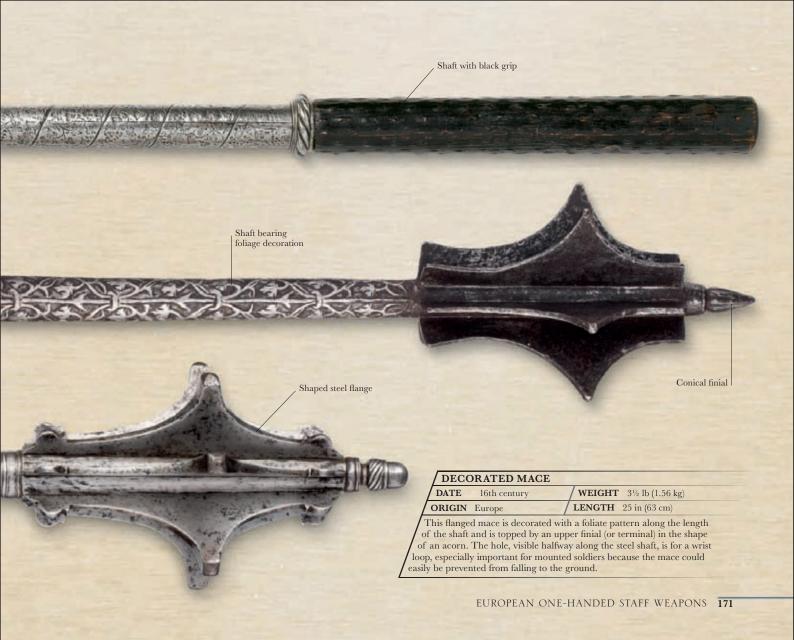
Made of steel, this mace has a conical finial fitted above seven flanges, each of which is drawn to a concave-sided point. The shaft is decorated with scrolling vine foliage in shallow relief. The flanged mace was the most common type of mace in use during the 16th century.



Wrist-loop hole









Staff weapons, especially when combined with bows, had proved highly effective against cavalry during the Middle Ages. They gave the infantryman the ability to keep the enemy horse and rider at a distance. Few horses had the spirit to surmount a bristling wall of blades, while the length of the staff weapons enabled the infantryman to strike the mounted soldier up in the saddle. In the 16th century they continued to be the foot soldier's most effective weapon. Swiss mercenaries popularized the halberd (p. 87), which, in the hands of a strong man, was capable of smashing through plate armor. So was the poleax, the weapon favored by armored knights when fighting on foot. By the early 17th century, these weapons were steadily replaced by the pike (pp. 176–77).

Axhead

### **POLEAX**

DATE 16th century

ORIGIN Germany

LENGTH Axhead: 11 in (28 cm)

Popular in the 15th and 16th centuries with knights fighting on foot, the poleax consisted of an axhead balanced by a hammer or fluke that was topped by a steel spike. All three were useful elements in penetrating plate armor. The weapon's name derives from "poll," the old English name for head.

Edged blade

Langet protecting

wooden shaft

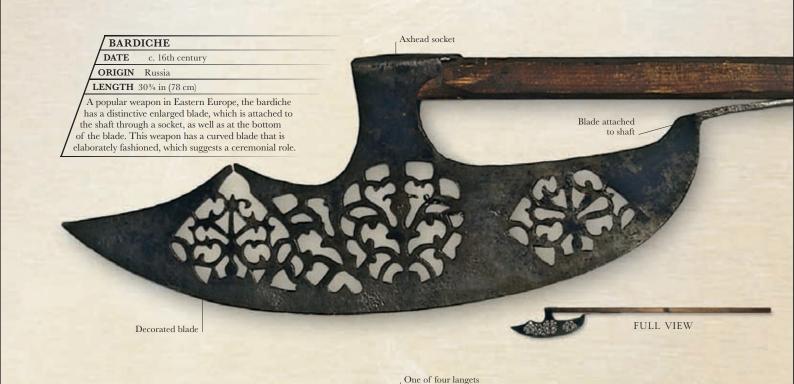
**FULL** VIEW

Hammer

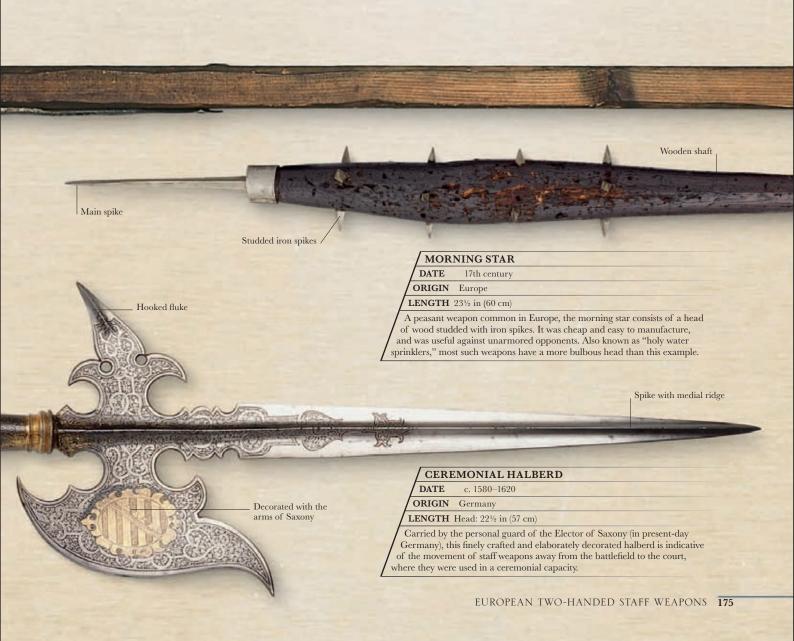
or fluke

Steel spike





# THE BRUTAL HOOKED FLUKE OF THE HALBERD WAS SUNK INTO A CAVALRYMAN'S ARMOR AND USED TO DRAG HIM TO THE GROUND.



## PIKEMAN

Pikemen had a profound effect on warfare in Europe from the 14th to the 18th century. The pike weapon reached up to 18 ft (5 m) in length—much longer than a traditional spear—and was capped by a hefty spearhead. When used on its own, the pike was a cumbersome, heavy weapon, but used in massed ranks, it revolutionized warfare. Pike-armed infantry, known as pikemen, were usually formed into squares—solid blocks of up to 100 men each, arranged in a 10-by-10 rank configuration. These blocks bristled with pikes. When attacking enemy ranks,

the pikemen would advance, at first with the pikes held high, then with the spearheads lowered, creating a layered wall of blades for the final offensive thrust. If they were surrounded by enemy cavalry, pikemen presented their pikes in a 360-degree pattern to keep the mounted troops at bay. Swiss and German pikeman were, for a time, almost invincible in battle, but with the rise of the use of firearms and the advent of the bayonet, the pike as an infantry weapon had almost become obsolete by the end of the 17th century.

	PIKE			
	DATE	c. 15th century	/	<b>WEIGHT</b> c. 11 lb (5 kg)
1	ORIGIN	Europe	7	<b>LENGTH</b> c. 18 ft (5 m)

This pike shows the essential simplicity of the weapon. The spearhead is of a double-edged, leaf-style design, and is riveted onto the long wooden shaft. If the pole broke or became too weak, the spearhead was easily detached and could then be attached to another pole.

Simple wooden shaft



## INDIAN AND SRI LANKAN SWORDS

The establishment of the Mogul empire in India in the 16th century brought with it the fine curved swords found throughout India, Sri Lanka, and the Islamic world. These *talwars* and *shamshirs* were superb cutting instruments that achieved near perfection in form and function. Although many Hindu princes adopted the *talwar*, the traditional straight-bladed Hindu *khanda* continued to be made. By the 18th century, many sword blades were imported from Europe, where they were being manufactured in Indian designs.



Blade is broad where langet

Dragon's-head pommel wooden grip

Iron blade

Iron quillon in the shape of a monster head Ribbed iron grip

Knuckle guard

Solingen maker's mark

#### GAUNTLET SWORD

DATE 17th century WEIGHT c. 29 oz (800 g)

ORIGIN Germany/India **LENGTH** c. 3½ ft (1.12 m)

This 17th-century Indian gauntlet sword was a fearsome thrusting weapon. The gauntlet sleeve provided excellent protection to the hand and the wrist. The blade was made in Solingen, a sword-producing center in Germany. Good-quality European blades were often used in Asia, and vice versa.

MALABAR COAST SWORD

**WEIGHT** 23 oz (650 g) DATE 18th century **LENGTH** 33 in (83 cm) ORIGIN Malabar, India

This straight, double-edged sword from southern India has a ribbed iron grip and a curved guard and pommel plate. Spiked flares on the sides of the guard prevented the sword from being grabbed from the swordsman's hand. Langets were riveted to the blade to strengthen its attachment to the hilt.

Double-edged blade

Brass-wire inlay decoration

**FULL VIEW** 

KASTANE

DATE Hilt: 17th century

WEIGHT 20 oz (550 g)

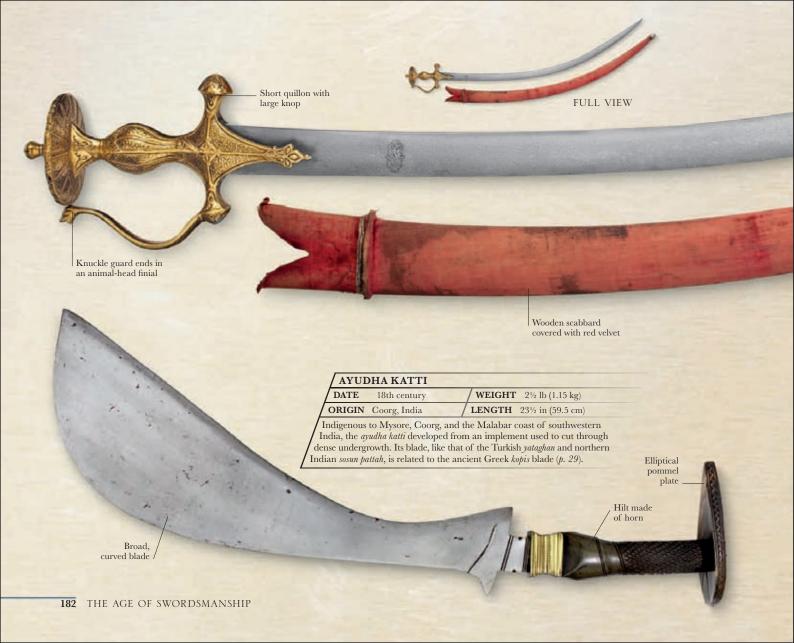
ORIGIN Sri Lanka

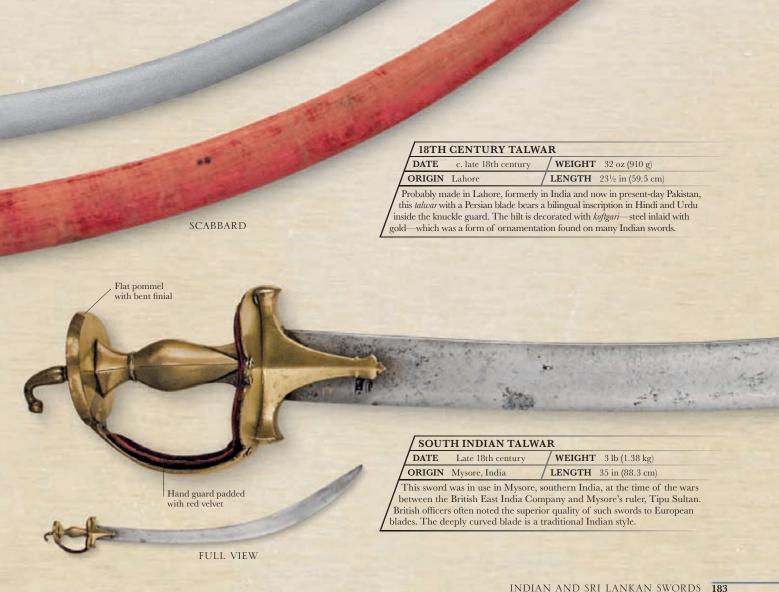
**LENGTH** 36 in (92 cm)

The kastane, the characteristic sword of Sri Lanka, had a short, curved blade, usually imported, and a hilt carved with fantastical decorations. Its value as a work of craftsmanship equaled its effectiveness as a weapon. The example shown here dates from the time of the Portuguese occupation of Sri Lanka.







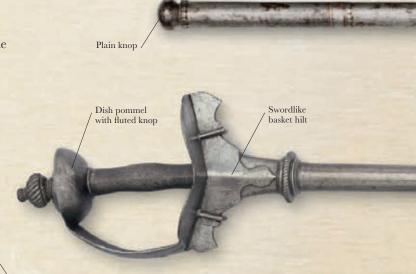


## INDIAN STAFF WEAPONS

Until the 17th century, the development of staff weapons in the Indian subcontinent was broadly similar to their evolution in Europe, although local Hindu traditions and the influence of Muslim invaders ensured notable differences in design and decoration. Despite the adoption of Western-style firearms by Indian rulers, maces and axes were actively used by Indian armies long after they had become obsolete in Europe. This was largely because Indian warriors continued to wear armor. At close quarters, a staff weapon was often more effective than a musket and bayonet or rifle.

Shaft and blade have sheet-silver decoration

Tubular iron shaft contains thin knife





H	/ TABAR			
	DATE	18th century	/ WEIGHT	2¾ lb (1.29 kg)
	ORIGIN	Sindh	LENGTH	28 in (71.3 cm)

The saddle ax, or *tabar*, was a standard weapon of Indian armies. This example is from Sindh, in what is now Pakistan. The curved cutting edge concentrated the weight of a blow at a narrow point of impact. Unscrewing the knop at the base of the weapon reveals a slim knife, 21¼ in (54 cm) long, inside the hollow shaft.

, Iron shaft

Rounded flange ends in bird-head design

Sharpened

spiral flanges

#### CHILD'S MACE

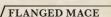
 DATE
 18th century
 WEIGHT
 7.5 oz (220 g)

 ORIGIN
 Northern India
 LENGTH
 13 in (32.8 cm)

With less than a tenth of the weight of a full-sized weapon and around a third of the length, this miniature mace was designed to be used by a child. It may have been employed for early military training. The head has eight rounded flanges, and is topped by a small, ribbed knop.

Iron shaft



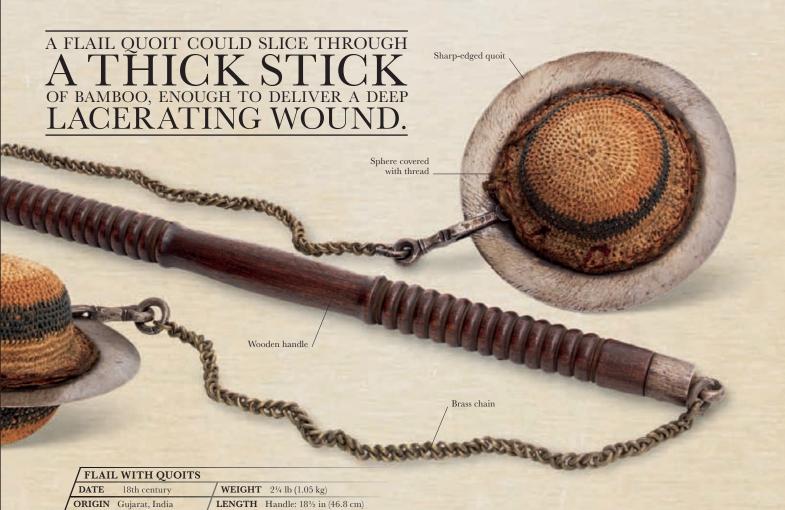


 DATE
 18th century
 WEIGHT
 5½ lb (2.55 kg)

 ORIGIN
 Rajasthan, India
 LENGTH
 33¼ in (84.2 cm)

This mace, or *gorz*, has a knuckle guard in the Hindu basket style, as often seen on *khanda* swords (*p. 289*). The spiral flanges on the head are sharpened to a cutting edge. The flanges focused the impact of a blow from this heavy weapon, making it effective even against armor.





This flail, or *cumberjung*, was made in Gujarat when the area was under the rule of the Hindu Maratha Empire. The handle was whirled to send the sharp-edged quoits (flattened metal rings) scything through the air. A fearsome weapon in close combat, it required considerable skill to use it effectively.

## CUTTING AND THRUSTING

During the 18th and 19th centuries, there was much argument in military circles over the relative merits of cutting swords as opposed to thrusting blades in warfare and self-defense.



Most swords and daggers could be used for both cutting and thrusting to some degree, such as the Turkish dagger shown below. Nevertheless, specialized weapons remained popular throughout the world. Sabers (pp.~130-31) and katanas

(pp. 190–91) had long cutting edges that were perfect for slashing attacks, while rapiers (pp. 138–41) and smallswords (pp. 142–45) were designed primarily to injure with the point of the blade. In an 18th-century treatise on defense, Captain John Godfrey recommended that slashing swords (which he called backswords) be used in battle, where there were many targets to attack, while smallswords be confined to duels and civilian use. Godfrey proved to be correct, and, by the 19th century, the military had indeed gravitated toward the cutting saber, while the rapierlike sword was largely confined to civilian and sporting use.

#### TURKISH DAGGER

 DATE
 c. 19th century
 WEIGHT
 c. 11 oz (300 g)

 ORIGIN
 Turkey
 LENGTH
 c. 12 in (30.5 cm)

This highly ornate Turkish dagger is a cut-and-thrust weapon, with a curved, double-edged blade tapering to a very fine point. The blade has cutaway sections for decoration, while the green agate handle is decorated with garnets.





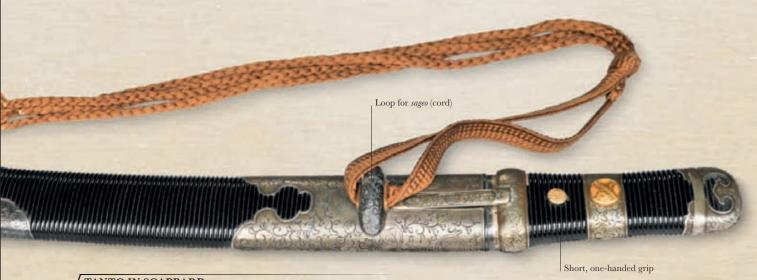
### JAPANESE SAMURAI WEAPONS

Japanese sword blades are considered to be among the finest ever made. Their success was due to the combination of a hard cutting edge with a softer, more resilient core and back. After a complex process creating a soft core enfolded in hard outer layers of steel, the swordsmith covered the blade in clay, leaving only a thin layer over what was to become the cutting edge. During quenching (pp. 98–99), the edge cools rapidly, becoming very hard, while the back cools more slowly, remaining less hard but more flexible. The mountings for blades developed their own aesthetic finesse. In the 15th century, for example, the manufacture of tsuba (guards) became a separate profession, and these are now collectors' items in their own right.



FIRST OF ALL, WHEN YOU LIFT UP THE SWORD, WHATEVER THE SITUATION YOUR INTENTION IS TO KILL THE OPPONENT.

SAMURAI MIYAMOTO MUSASHI (c. 1584-1645), THE BOOK OF FIVE RINGS, c. 1643



#### TANTO IN SCABBARD

WEIGHT 19 oz (550 g) DATE c. 18th century ORIGIN Japan **LENGTH** c. 16 in (40 cm)

The tanto was a short sword that came into use during the Heian period (794–1185), and its popularity waxed and waned until the 20th century. This weapon is encased in a black lacquered sheath, and it was not uncommon to see slim kogatana knives stored in a sheath pocket.

#### KATANA IN SCABBARD

DATE 18th century WEIGHT 24 oz (680 g) ORIGIN Japan **LENGTH** 27½ in (69.8 cm)

This long sword, or katana, forms a daisho (combination) with a matching short sword, or wakazashi (pp. 198–99). During the Edo regime, the katana was exclusively worn by the samurai, while merchants and townsmen were allowed to carry a wakazashi. In combat, a samurai typically held the katana in a two-handed grip, which the tsuka (handle) easily accommodated.

Sageo for tying scabbard into belt

Tsuba (guard)

Silk braid binding

Menuki (hilt ornament)

#### FAN DAGGER

 DATE
 c. 17th century
 WEIGHT
 c. 11 oz (300 g)

 ORIGIN Japan
 LENGTH
 c. 10¼ in (25 cm)

Fans were customary items around the Japanese court, so they also provided an ideal disguise for a self-defense weapon, such as the dagger shown here. The fan slats are actually a solid scabbard, holding a single-edged steel dagger. The hilt of the dagger is formed by the ridges of the fake fan slats. The loop at the end acted as a fastening to secure the blade in the scabbard.



FULL VIEW

Single-edged blade



#### FLUTE KNIFE

 DATE
 c. 16th century
 WEIGHT
 c. 9 oz (250 g)

 ORIGIN
 Japan
 LENGTH
 c. 12 in (30.5 cm)

In Japan, bamboo flutes were occasionally used as stick-style weapons, but this item is far more elaborate. The intricately made metal casing, crafted to look exactly like a real bamboo flute, contains a double-edged dagger. The fake "mouthpiece" formed the hilt, and the main body of the "flute" was a sheath to conceal the blade.



#### POUCH DAGGER

DATE c. 16th century WEIGHT c. 9 oz (250 g)

ORIGIN Japan

**LENGTH** c. 8 in (20 cm)

Tobacco pouches were common articles in early modern Japan, generally worn by samurai on the waist and fastened with a netsuke (toggle) under the sash. They were natural places to conceal weapons. Here the netsuke acts as a scabbard for a simple dagger, fitted with a lacquered wood handle.

Plain, single-edged steel blade



Pouch toggle acts as dagger scabbard



Lacquered wooden handle





Section around mouthpiece forms dagger hilt









# IF AN ADVERSARY IS POSITIONED SUCH THAT THE TIP OF HIS SWORD IS FACING YOU, STRIKE AS HE RAISES IT.

MIYAMOTO MUSASHI, THE BOOK OF FIVE RINGS, c. 1645

Sageo



The blade of a tachi was traditionally over 24 in (60 cm) in length, although it was shorter than the nodachi field sword, which a samurai slung over his shoulder. Tachi hilts were equipped with a traditionally shaped kashira (pommel) that wrapped around the end.



#### WAKAZASHI

 DATE
 17th century
 WEIGHT
 15 oz (420 g)

 ORIGIN
 Japan
 LENGTH
 19 in (48.5 cm)

The wakazashi was a samurai's constant companion, worn from waking until sleeping, and even kept nearby during the night. In addition to serving as an additional fighting sword to the katana and as a sidearm, it was often the weapon used by the samurai to perform ritual suicide (seppuku), by plunging it into the abdomen.



#### ORNATE WAKAZASHI IN SCABBARD

 DATE
 c. 18th century
 WEIGHT
 26 oz (420 g)

 ORIGIN
 Japan
 LENGTH
 20 in (50 cm)

This modern-day replica of the wakazashi has been lavishly mounted. The real weapon would almost certainly have been worn on ceremonial occasions as a display of status. The sides of the ornate lacquered scabbard carry the kogatana and kogai (hair pin) associated with the wakazashi.

Sageo



## WAKAZASHI SWORD

The *wakazashi* swords in this section are of a style popular during the Edo period in Japan (1603–1876). A *wakazashi* might have been worn by a samurai when in civilian dress, as an accompaniment to his *katana*, or on its own by rich merchants or townsmen. When indoors, a samurai would leave the *katana* by the door, but would still wear the *wakazashi*. The sword's mounting (hilt and guard) was a separate piece that was attached to the blade. The following pages show the constituent parts of both the blade and the mounting. A lavish mounting was a visible symbol of the wearer's wealth. A well-off individual would have had several mountings for a single blade, choosing the most suitable one for a given occasion.







WAKAZASHI

DATE 17th century / WEIGHT 15 oz (420 g)

ORIGIN Japan | LENGTH 19 in (48 cm)

The complete wakazashi sword shown here is a fine example of the typical samurai side arm. Light and perfectly balanced—the point of balance was just in front of the tsuba (guard)—it was an useful weapon for both cutting and thrusting. A kogai, or hair pin, is held in a special fitting on the saya (scabbard), which also housed a kogatana, or small blade. The various components of a wakazashi are shown here in close-up on pp. 202–03.



Kogai

#### **MEKUGI**

The *mekugi* is a small peg that passed through a hole in the hilt and a corresponding hole in the *nakago* (tang) of the blade, securing the hilt to the tang. The *mekugi* was usually made of bamboo, but occasionally of horn or ivory.

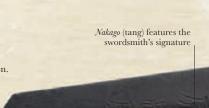
Hole for mekugi

#### SUNAGI

When it was not attached to a blade, the mounting of the sword was assembled on a wooden copy of a blade and tang called a *sunagi*. Separated from its mounting, the blade was stored in a wooden scabbard with a plain wooden grip called a *shirasaya*.



Making the hard, sharp edge and softer, resilient core and back of the blade was a complex, skilled operation. Swordsmiths often marked the tang of the *wakazashi* with their signature; this blade is signed by Tadahiro of Hizen province on Kyushu island.





Munemachi (back notch)





Hole for tang

copper fit onto each side of the guard.



## SAMURAI

A martial elite of Japan from the medieval period to the 17th century, the samurai were mounted armored warriors known for their skills with the sword and spear. By the 12th century, they had effectively become Japan's ruling class. Although we have come to identify the samurai mainly with swords, between the 11th and 14th centuries, the bow-and-arrow was their principal weapon. Later, improvements in sword making made the *katana* and *wakazashi* the preferred weapons of combat.



Wearing an elaborate suit of armor, the samurai was a terrifying battlefield warrior. He would often kill an enemy, cut off his head, wash it, and mount it on a spike. Fierce and bloodthirsty, he was revered for his skill in swordfighting.

#### TOSEI GUSOKU

**DATE** 16th century

ORIGIN Japan

The tosei gusoku was a light samurai body armor made from bamboo, cloth, and metal. Introduced during the 16th century, it was lighter than the lacquered metal armor used during the medieval period. Γhe helmet was usually adorned with antlers or buffalo horns.





## ASIAN DAGGERS

From the 16th to the early 18th century, when most of India was ruled by the Mogul Empire, the daggers from the Indian subcontinent were notable for their high-quality metalwork, ornamentation, and distinctive forms. Some daggers, such as the *kard*, were Islamic imports; others, including the *katar*, had specifically Indian roots. Daggers were worn by Indian princes and nobles for self-defense, for hunting, and for display. In combat, they were essential close-quarters weapons, capable of piercing the chain-mail armor worn by Indian warriors.

#### PARRYING SHIELD

DATE 18th century

18th century / WEIGH

WEIGHT Unknown

ORIGIN Central India / LENGTH Blades: 7 in (17.7 cm)

This Indian parrying shield has five blades, each with a reinforced tip, that radiate from a central point. The grip is hidden behind a protective metal guard that curves backward around the warrior's hand.

FULL VIEW

> Gilded chape (metallic trimming)

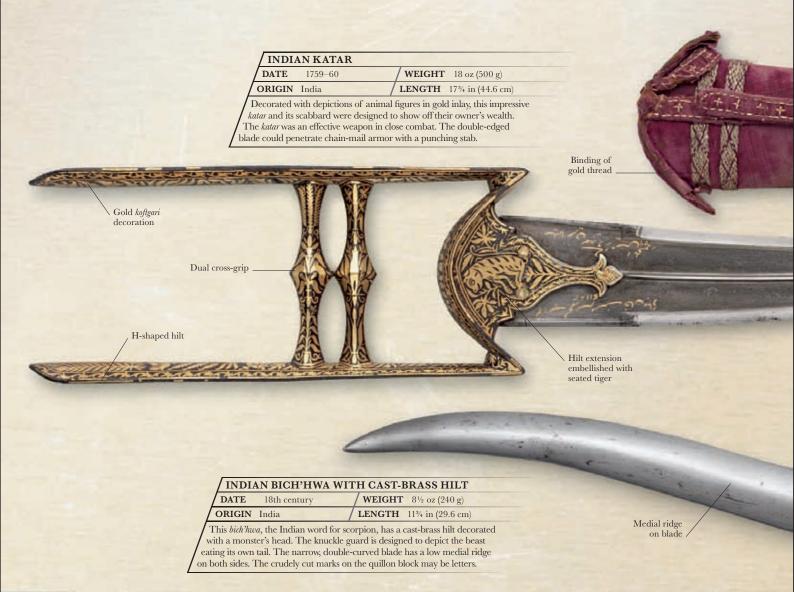
Guard inlaid with silver

Decorative tassle

Reinforced tip

Central ridge

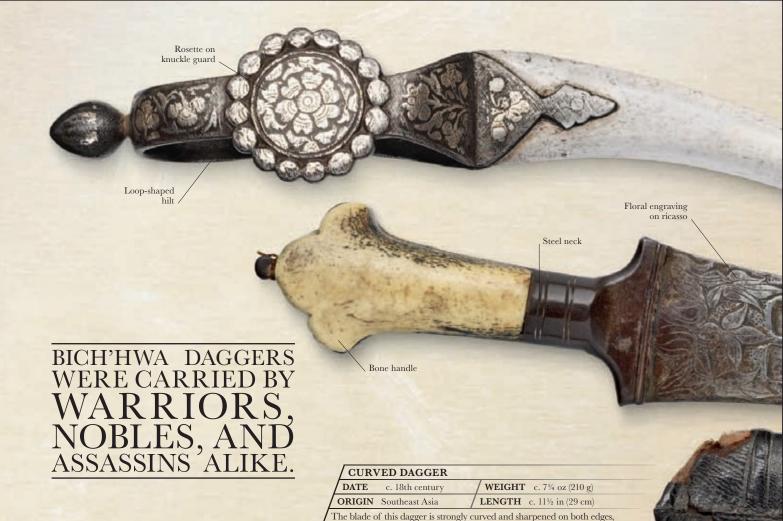








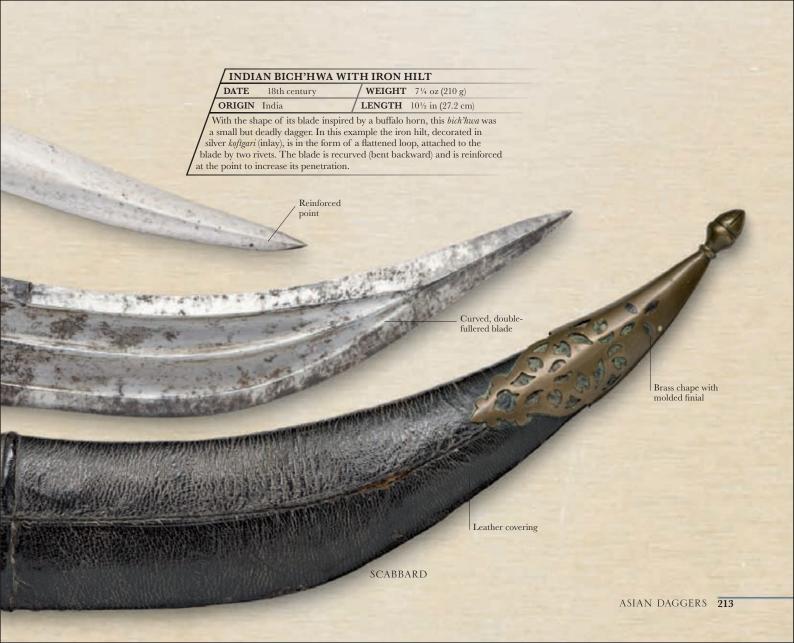




pins, with the tang button visible at the base.

making it a slashing as well as a stabbing weapon. The blade of the dagger has a double fuller and floral engraving. The bone hilt is secured by three

212



## COMBINATION WEAPONS

German and Italian armorers of the 16th century were particularly adept at incorporating firearms into other weapons, both blunt and edged. Many of the examples that survive today were probably intended to be showpieces, since they frequently display the most ornate decoration, and it is not clear whether they were ever meant for martial use. The tradition continued—a rifle or pistol equipped with a bayonet can be termed a combination weapon—and spread to other countries, notably to India, where more practical examples were produced during the late Mogul period.

#### MATCHLOCK AX/DAGGER

 DATE
 c. 1820
 WEIGHT
 2½ lb (1.12 kg)

 ORIGIN
 India
 LENGTH
 20½ in (52.3 cm)

This weapon has been designed by combining a matchlock gun, an ax, and a dagger. A matchlock was an early type

gun, an ax, and a dagger. A matchlock was an early type of gun that was fired using a smoldering cord. This gun's barrel is closed by a tubular, crosshatched grip, which unscrews to reveal a knife. The pommel also unscrews to reveal a tiny compartment. The axhead, decorated with engraved scrollwork, is mounted on an iron shaft.

Pommel .



Ramrod

Hinged

Serrated wheel strikes flint to fire the gun

Square shaft

takes the key that

winds the wheel

#### WAR HAMMER WHEELLOCK

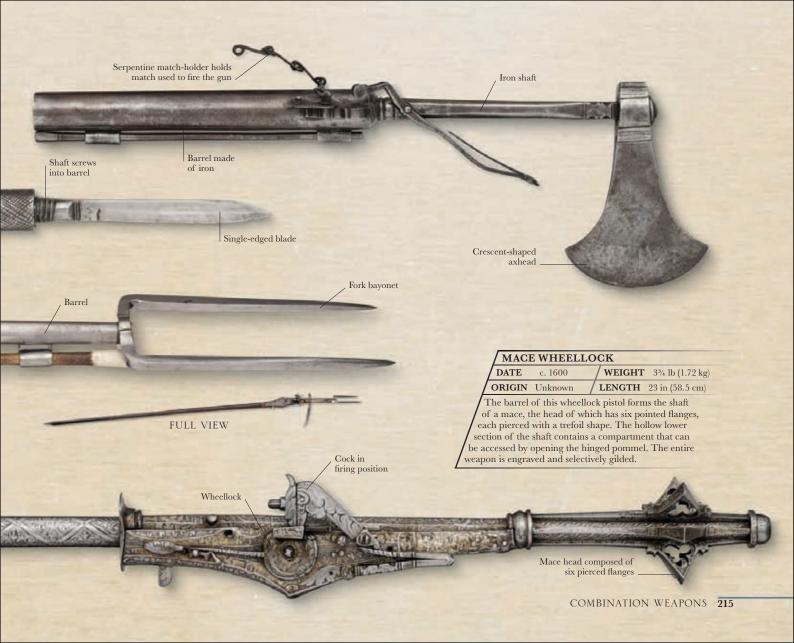
 DATE
 c. 1590
 WEIGHT
 3½ lb (1.70 kg)

 ORIGIN
 Germany
 LENGTH
 24½ in (61.6 cm)

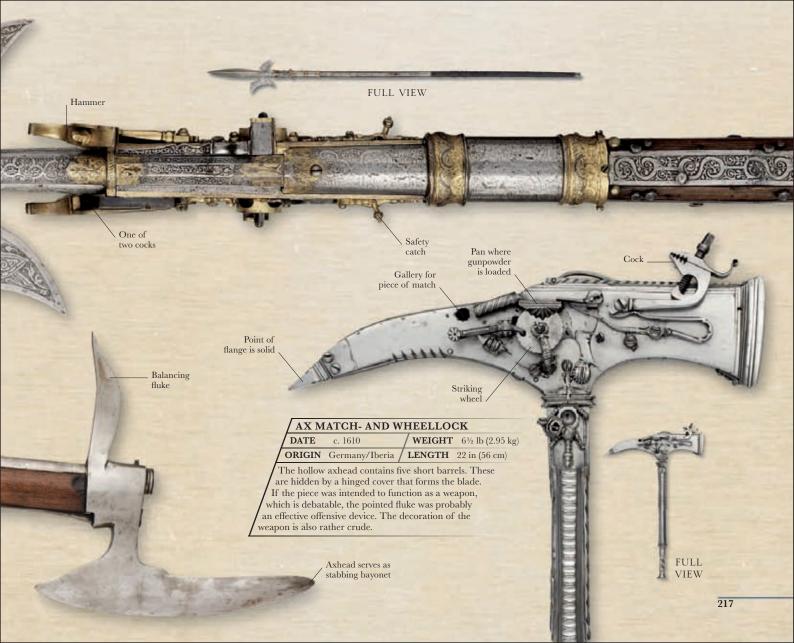
Trigger

This long-shafted war hammer incorporates a wheellock pistol—an improvement on the matchlock pistol. The hammerhead of this war hammer is missing; only its beak remains. With all its fully functional parts, it seems this weapon was produced for practical rather than ceremonial purposes.

Beak











HE PERIOD FROM 1775 TO 1900 CONTINUED to see swords being used in combat. In the hands of both the infantry and cavalry, swords were wielded in action from the battlefields of colonial America to those of China and India. Yet, during the 19th century, the value of the sword declined massively, as firearms became more sophisticated and powerful. By the end of the century, the sword's role in deciding the outcome of battles was negligible.



It was the widespread use of firearms that irrevocably altered the status of the sword, but this change was gradual. Firearms had been around for several centuries and by 1775 the flintlock musket became the standard infantry weapon of most European armies. Its automated mechanism allowed the infantryman to fire the gun more easily, which gave him a tactical advantage over the more traditionally armed enemy. Yet the flintlock had its limitations. Flintlock weapons were generally inaccurate and suitable only for tactics such as volley fire, when all the muskets were fired simultaenously. They also had a poor rate of fire—only two or three rounds a minute in battlefield conditions—and wet weather dampened gunpowder, rendering entire

banks of muskets useless. Because of these limitations, foot soldiers still had to come close to the enemy to secure victory, and in the ensuing close-quarters battle the sword still proved useful, particularly for the cavalry. Fine examples of short swords and cavalry swords therefore remained in production throughout the 19th century, not only in Europe but also in the newly independent United States.



Prior to the arrival of the European colonists in the 16th century, the Native American population used traditional knives made of stone, bone, and horn, as well as some copper blades. Yet as colonization expanded in the 17th century, the Native Americans increasingly used daggers bought directly from European settlers. The settlers too initially used swords and daggers made in Europe, but during and following the Revolutionary War (1775–83) the homegrown sword industry began to flourish. Simple battle-ready hanger swords, cavalry sabers, and bayonets were forged, which steadily became popular across the country. During the 19th century, certain American blades such as the Bowie knife gained international recognition. By the time of the Civil War (1861–65) sword production in the United States reflected the

North-South divide. The Northern Union produced high volumes of swords, possibly because of its greater reliance on cavalry and its more powerful industrial base, while the Confederate South was forced to rely on far smaller outputs from local swordsmiths and factories.



During the 19th century, blade design more or less ceased to evolve. During their colonial expansion, British soldiers often encountered opposition from warriors wielding medieval-style swords. In Burma, for example, during the wars of 1824-86, British and allied Indian soldiers faced Burmese warriors swinging the dha, a single-edged blade similar in shape but not in quality to the Japanese samurai swords. In the Middle East, Turkish warriors were still seen carrying the yataghan sword, even as the Ottoman Empire faded. However, the prominence of swords declined further as the century wore on. By the 1890s, firearms had evolved into breech-loading guns (loaded from the rear of the barrel) fed by magazines of cartridges. A single infantryman could now fire 10-15 accurately aimed shots per minute. The introduction of automatic guns such as the multi-barreled Gatling and the self-powered Maxim machine guns turned individual firearms into weapons of

mass destruction. The development of firearms meant that by the end of the century most battles were decided by exchanges of firepower, not in close-quarters engagements with the sword. This raised questions about the relevance of the sword in combat. At the same time, the civilian use of swords also dwindled and faded.



Advances in gun making transformed warfare, but did not remove blades from the battlefield. At the end of the 19th century every modern army still used hefty bayonets, and officers often wore dress swords to distinguish themselves from their men. Although firearms could kill opponents at long range, soldiers still had to fight at close quarters to take and hold ground, and here the bayonet was invaluable. New models of bayonet were issued in Europe throughout the 1890s, and promised to keep the blade-bearing warrior a reality into the 20th century.

### TWILIGHT OF THE SWORD

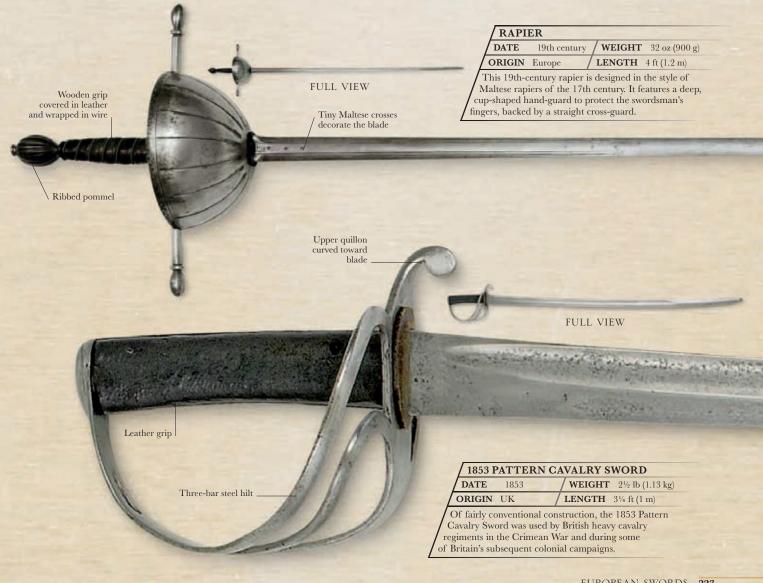
### EUROPEAN SWORDS

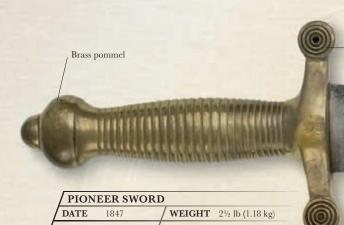
By the time of the French Revolution (1789–99) and Napoleonic Wars (1799–1815), cavalry swords had evolved into the long, straight, thrusting sword of the heavy cavalry, and the light cavalry's curved saber that was designed for cutting and slicing. For the infantry, the rising supremacy of firearms meant that swords were well on their way to becoming ceremonial weapons, but such was their status that they continued to be used as symbols of rank, carried by officers and senior noncommissioned officers. Having lost their practical function, infantry swords became increasingly decorative, some even harkening back to weapons of the classical era.

Brass pommel and back piece **FULL** Oval rivet secures VIEW tang to hilt Knuckle guard with two side branches Langet fixed over Single-edged blade cross-guard

MODEL 1827 SABER	
<b>DATE</b> c. 1830	/ WEIGHT 23/4 lb (1.22 kg)
ORIGIN Russia	<b>LENGTH</b> 3½ ft (1.02 m)

A copy of cavalry swords of the Napoleonic era, the Russian Model 1827 Cavalry Saber had a slightly curved, single-edged blade with a wide fuller and a brass hilt. The twin langets were not only useful in firmly securing the sword to the scabbard, but also helped in trapping an opponent's sword.





ORIGIN Russia / LENGTH 25 in (63.5 cm)
The hilt of this Russian sword is based on the French
Model 1831 infantry sword. Both weapons reflect an
interest in the classical world and clearly demonstrate the
influence of the Roman gladius (pp. 34–35). The all-brass
hilt includes a simple cross-guard, ribbed grip, and

pommel, while the short, wide blade has a single fuller.

Brass

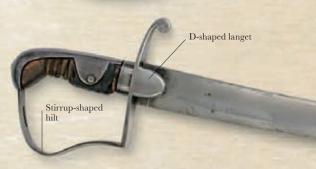
\_ Straight quillon with circular finial

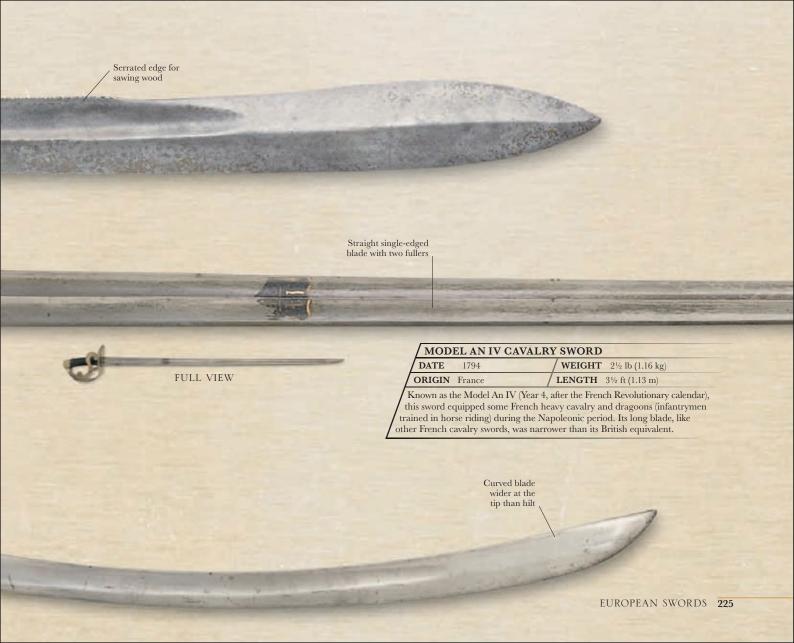
pommel cap

Brass hilt includes the symbol of the Fasces, a reference to republican Rome

1	1796 LIGHT CAVALRY SWORD			
Γ	DATE	1796	/ WEIGHT 21/4 lb (1 kg)	
C	RIGIN	UK	<b>LENGTH</b> 38 in (96.5 cm)	

Considered to be among the finest of cutting swords, the 1796 Light Cavalry Sword was developed in tandem with the Heavy Cavalry Sword (pp. 234–35). The broadening of the blade near the tip gave greater power at point of impact.



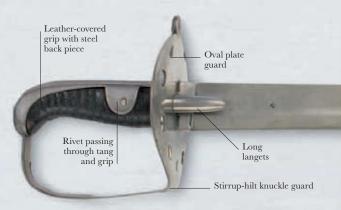


## BRITISH CAVALRYMAN

From the late 18th to the end of the 19th century, fascinating developments took place in the British cavalry. There were two types of cavalry—heavy cavalry (heavily armed and armored) and light cavalry, which used lighter arms and armor.

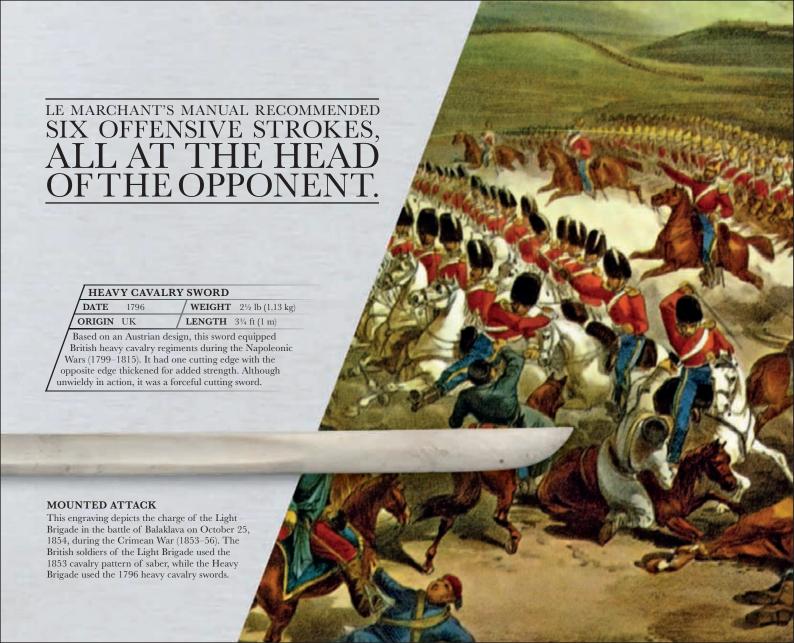


British cavalrymen used a mix of swords, and there was little consistent training until the intervention of Major-General John Gaspard Le Marchant, a cavalry general in the British Army.



Dissatisfied with the state of cavalry swords and swordsmanship during his campaigns with the British Army in the 1790s, Le Marchant developed a new sword and published a manual of mounted warfare techniques. His tactics focused on striking at the enemy's head with precision even when at a gallop. Le Marchant's 1796 Light Cavalry Sword (pp. 224–25) was a good cutting weapon adopted by the light cavalry, but the army decided that the heavy cavalry should use a straight, heavy cutting sword, like the heavy cavalry sword (below), since it made the strike more powerful. After testing various designs, a new cut-and-thrust cavalry saber was established in 1853 as standard for both light and heavy cavalry.

Straight, single-edged blade





Straight doubleedged blade Simple ogival (arched) point



#### NAPOLEONIC INFANTRY SWORD

 DATE
 Early 19th century
 WEIGHT
 32 oz (900 g)

 ORIGIN
 France
 LENGTH
 29 in (74 cm)

Carried by the ordinary foot soldier during the Napoleonic Wars, this infantry hanger was known as a "briquet." It has a simple, one-piece brass grip, which is ribbed to improve the grip, and a curved steel blade. This type of sword was also issued to French sailors in place of a naval cutlass.

Curved steel blade

Double-edged blade with single deep fuller

### SPANISH CEREMONIAL RAPIER

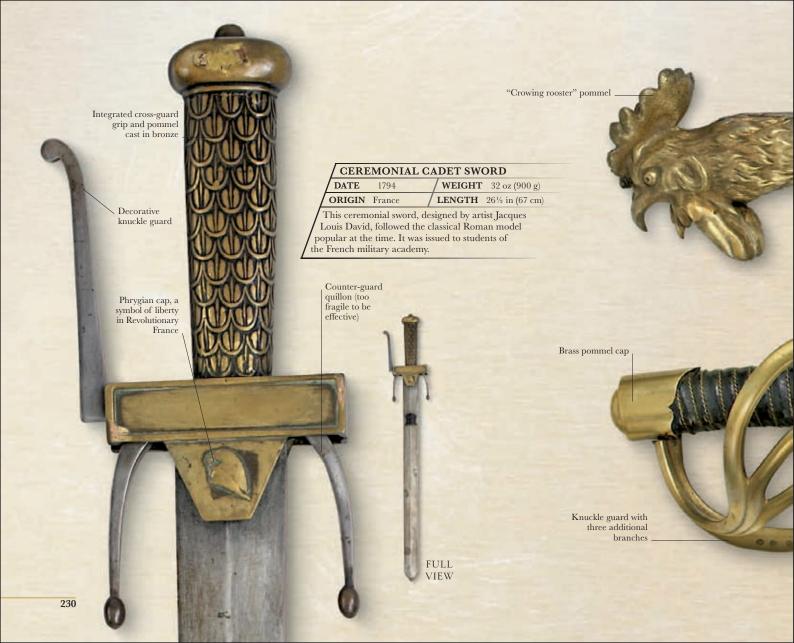
 DATE
 Early 19th century
 WEIGHT
 c. 2½ lb (1 kg)

 ORIGIN
 Spain
 LENGTH
 c. 4½ ft (1.4 m)

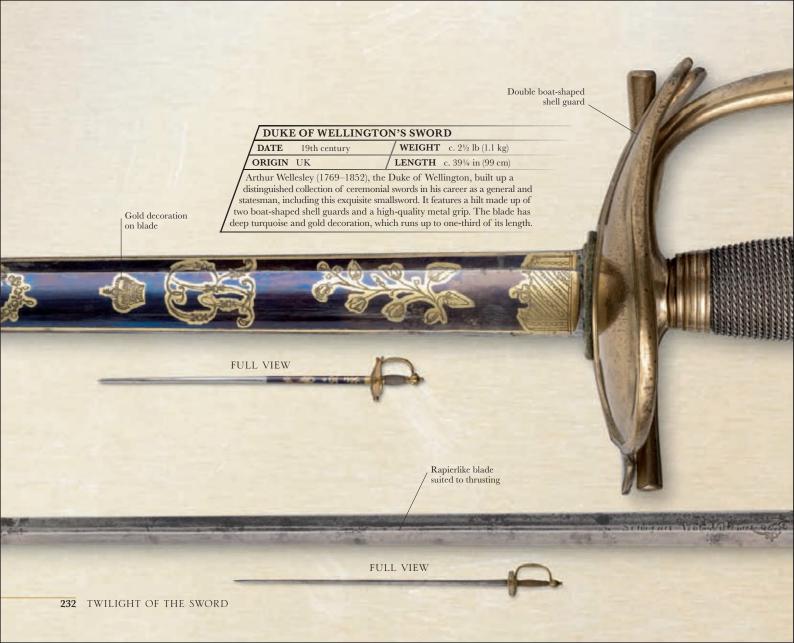
This sword was surrendered by the French governor of Ciudad Rodrigo, in Spain, to British Lieutenant John Gurwod, who led the attack on this fortress in 1812 during the Peninsular War (1800–14). The inscription on the blade shows the sword was made in Toledo, a city famous for its high-quality metalwork.

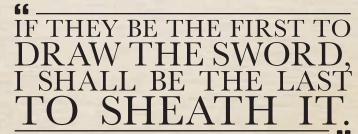


FULL VIEW









NAPOLEON BONAPARTE, ON THE BRITISH, 1803

Spherical pommel

riveted to knuckle guard

#### NAPOLEON'S SWORD

DATE Late 18th century

**WEIGHT** c. 21/4 lb (1.02 kg)

ORIGIN France

**LENGTH** c. 37¾ in (96 cm)

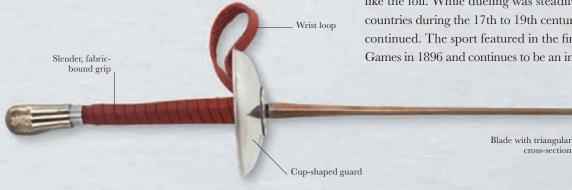
This simple, rapierlike sword belonged to none other than the French emperor Napoleon Bonaparte (1769–1821). It was presented to him when he was serving as a young artillery officer. The sword's double-shell cross-guard is made of brass and carries an inscription meaning "Royal Artillery" in French.



# FENCING

Fencing developed in Europe in the 13th or 14th century as a form of training for duels (*pp. 136–37*) and for warfare. By the 15th century, it had evolved into a sport, with points awarded to a fencer when his sword made contact with his opponent's body. Fencing's popularity surged in the 16th century, when it became fashionable for civilians to carry swords. Fought with rapiers (*pp. 138–41*) and smallswords (*pp. 142–45*), early fencing was dangerous, and at times fatal. It became much safer in the 18th century with the introduction of the fencing mask and customized weapons—the foil and the fencing saber. These,

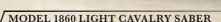
along with the *épée* (below), became the quintessential fencing weapons. All three corresponded to a particular style of fencing, governed by its own set of rules. The foil, a light, flexible sword with a blunt tip, was used for thrusting movements—only the tip of its blade made contact with the opponent. The saber was of a similar design, but was used for both thrusting and slashing—the tip and edges of the blade came into play. The *épée* was developed in the 19th century by a group of French students who found the foil and saber too light to give the experience of a realistic duel. Essentially a copy of the smallsword, it was used for thrusting, like the foil. While dueling was steadily banned in many countries during the 17th to 19th centuries, fencing's popularity continued. The sport featured in the first modern Olympic Games in 1896 and continues to be an integral part of the event.





### SWORDS OF THE AMERICAN CIVIL WAR

The armorers of the newly independent United States of America followed patterns for sword making from a mixture of German, French, and British sources. But from the 1840s onward, US swords were based almost exclusively on French designs, and it was these swords that armed the soldiers of the American Civil War (1861–65). While the Union forces of the North were well supplied with arms and equipment, the Confederate armies in the South were short of weapons of all kinds, including swords. They were forced to rely on captured Union stocks, foreign sources, and



 DATE
 c. 1860
 WEIGHT
 3 lb (1.36 kg)

 ORIGIN
 USA
 LENGTH
 35½ in (90 cm)

This saber, used by armies of both sides during the Civil War, was designed to replace the Model 1840 Light Cavalry Saber. The latter was a heavy, powerful sword whose weight made it unpopular with the troops, who nicknamed it "Old Wrist Breaker." The new sword was not considered much of an improvement, although it was an effective thrusting and hacking weapon.

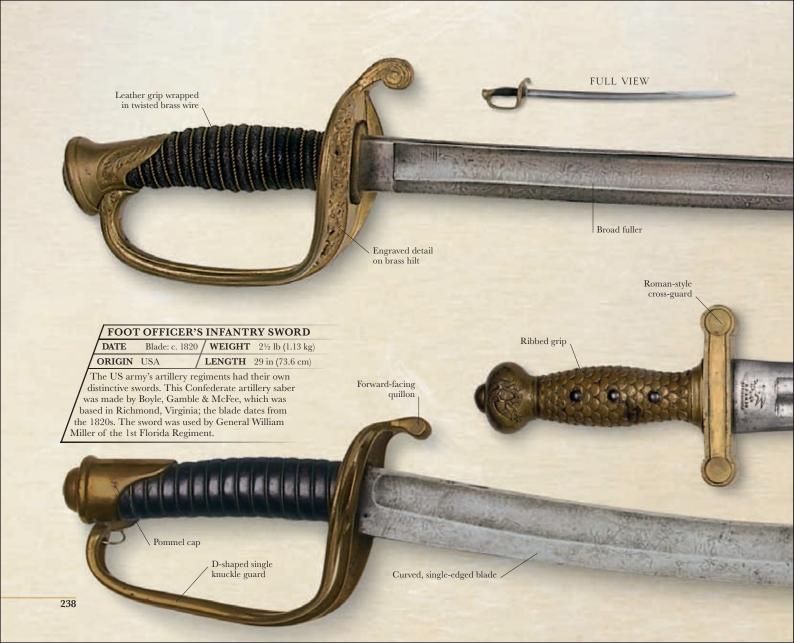
Leather grip wrapped in twisted brass wire

Knuckle guard

their own home-produced weapons.

Guard branch





#### **MODEL 1850 INFANTRY SWORD**

DATE c. 1850 **WEIGHT** 2½ lb (1.13 kg)

ORIGIN USA

**LENGTH** 30 in (76.8 cm)

Swords such as the example shown here equipped the majority of infantry officers on the Union side. By the time of the Civil War, officers would rarely have used a sword in actual combat, but such was its potency that it continued to be worn throughout the 19th century as a symbol of rank.

### ARTILLERYMAN'S SHORT SWORD

DATE

c. 1850

**WEIGHT** c. 23/4 lb (1.2 kg)

ORIGIN USA

**LENGTH** 25 in (63.5 cm)

Long before the Civil War, the US Army gave artillerymen these short swords, modeled on the blades of ancient Rome. Originally intended for self-defense, by the time of the Civil War they were generally used instead for cutting rope and cannon fuses.

Deep fuller

Doubleedged blade

**FULL VIEW** 

### CONFEDERATE SWORD

 DATE
 c. 1860
 WEIGHT
 2½ lb (1.13 kg)

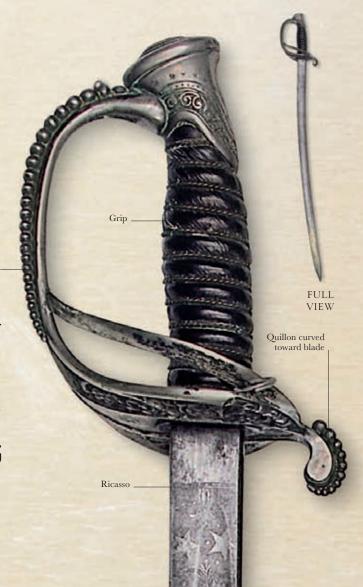
 ORIGIN
 USA
 LENGTH
 30 in (76.2 cm)

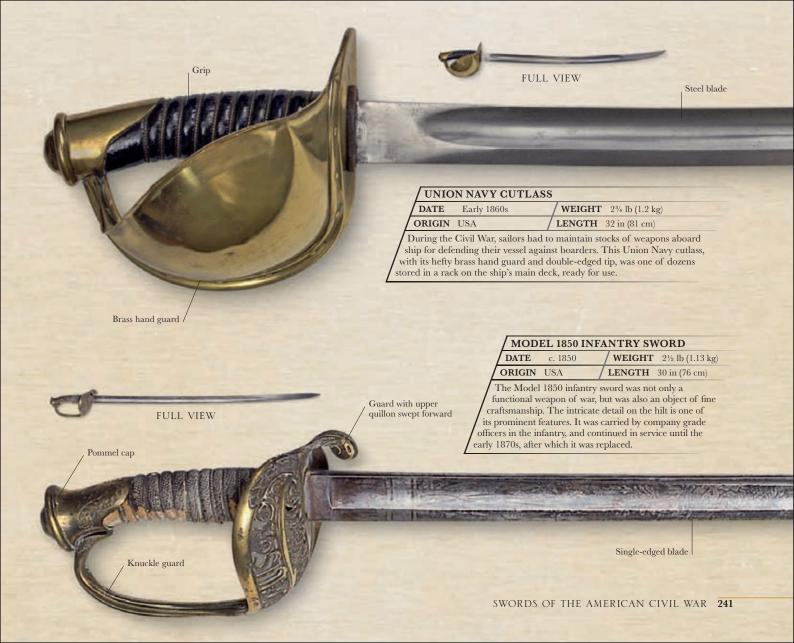
The purchase of weapons for popular officers by their troops was a feature of American military life. This fine sword, made by Leech & Rigdon, was presented in 1864 to General D. W. Adams of the Confederate Army by the men under his command. The sword follows the standard pattern for staff and field officers' swords in the Confederate forces.

Knuckle guard

A YOUNG LIEUTENANT HAD FALLEN IN TRYING TO RALLY HIS MEN: HIS HAND WAS STILL FIRMLY GRASPING HIS SWORD...

POPULAR SCIENCE, 1893





# UNITED STATES CAVALRYMAN

The American Civil War (1861–65) between the Confederate South and the Northern Union marked a transitional time for American cavalry. The increased use of musket and cannon threatened to make the cavalry obsolete, at least in open battle.



Massed cavalry actions still occurred—for example, at the battles of Brandy Station (1863) and Trevilian Station (1864). Aside from these, the cavalry was principally used for

Brass basket hilt and guard raiding, pursuit, and reconnaissance. Initially, the Confederate cavalry was regarded as a superior force because of its better horsemanship, but by 1864 the Union cavalry had achieved similar competence. The Northern cavalry used traditional sabers more for fighting, while the Southern cavalry preferred carbines and pistols, although they still wore sabers alongside their firearms, as backup weapons and as a sign of status. The classic Civil War cavalry swords were the 1840 Cavalry Saber (below) and the subsequent 1860 Light Cavalry Saber.

### **CONFEDERATE 1840 CAVALRY SABER**

 DATE
 c. 1850
 WEIGHT
 3¼ lb (1.56 kg)

 ORIGIN
 USA
 LENGTH
 35 in (89 cm)

This Confederate cavalry saber, designed for heavy slashing blows, features a brass basket hilt and a leather grip. The slight angling of the grip gave the swordsman greater leverage behind the blow. The cavalry of the Confederate states used sabers based on this model.



### EUROPEAN AND AMERICAN BAYONETS

The sword bayonet, with its long blade, became increasingly popular in the 19th century, replacing the hanger sword and socket bayonet of the ordinary infantryman. However, the 19th century also saw the development of mass-produced, long-range firepower that rendered the bayonet irrelevant as a military weapon. Despite this, armies continued to place great emphasis on the bayonet, not least because it was believed to encourage an aggressive, offensive spirit among the infantry. It was this attitude that, in part, led to the mass slaughters of World War I, when soldiers with bayonets fixed were pitted against quick-firing artillery and machine guns.

spring spring Brass handle

Locking-bolt

Knuckle guard

Leather grip

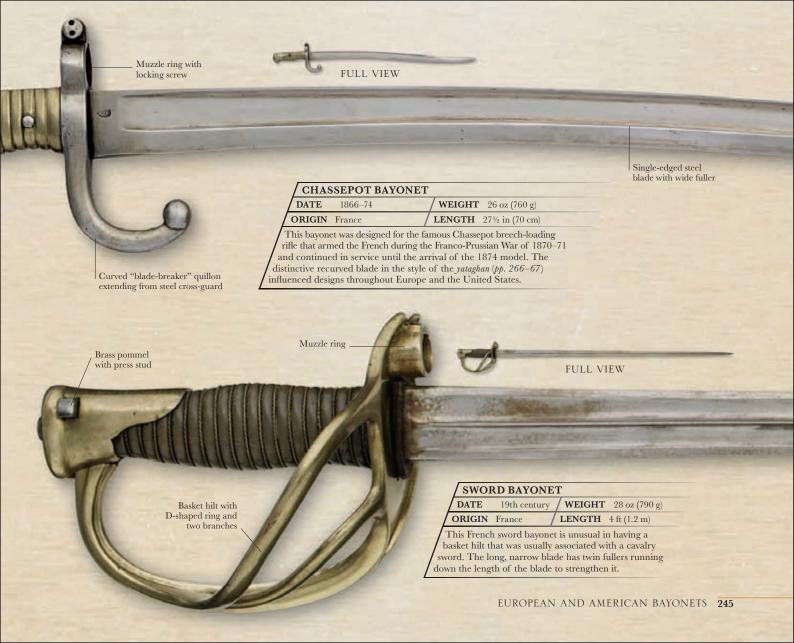
Straight quillon

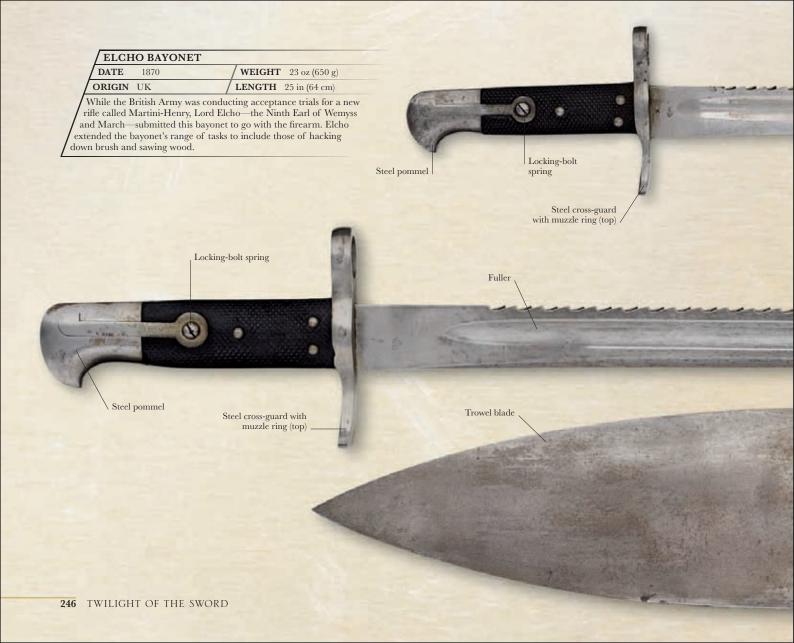
DATE	1810		/ WEIGHT	18 oz (500 g)
ORIGIN	UK	/	LENGTH	30½ in (77.5 cm

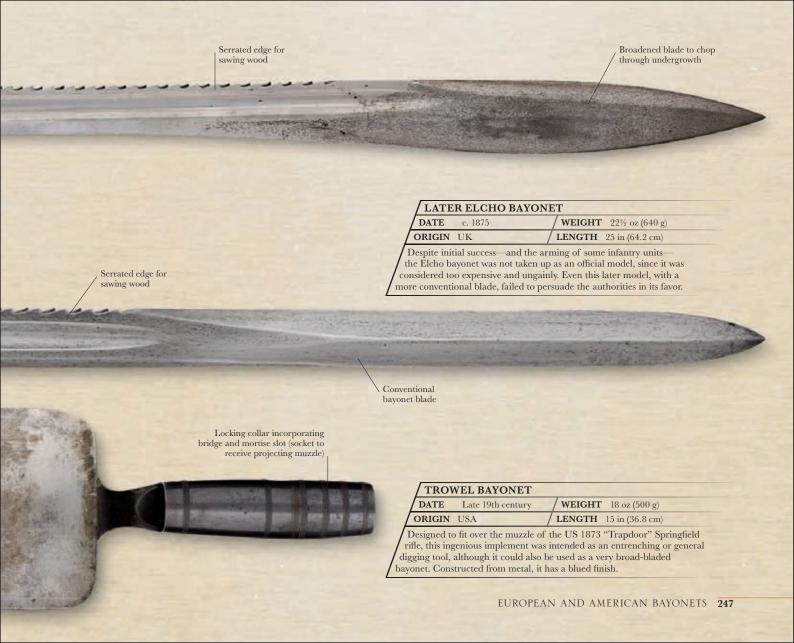
During the Napoleonic Wars (1799–1815), the regular British Army was equipped with the Baker rifle and its sword bayonet (pp. 250–51). Volunteer units, however, had to draw upon other sources for their rifles and bayonets. This sword bayonet, made for the London gunmaker Staudenmayer, features a gilded hilt and straight steel blade. Its knuckle guard would lock the rifle to the bayonet. This method rendered the weapon less effective than the Baker rifle and bayonet.

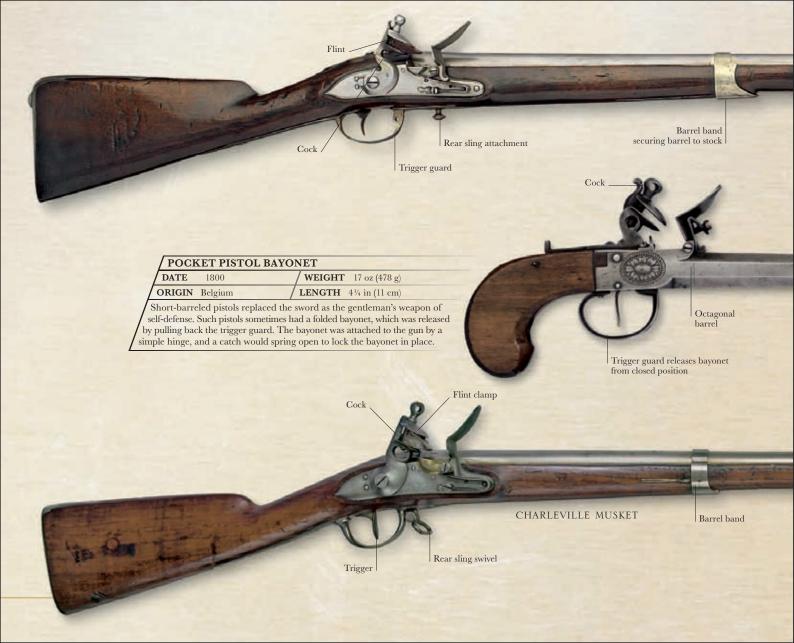
Ring for muzzle (open front end of barrel) with fore sight slot

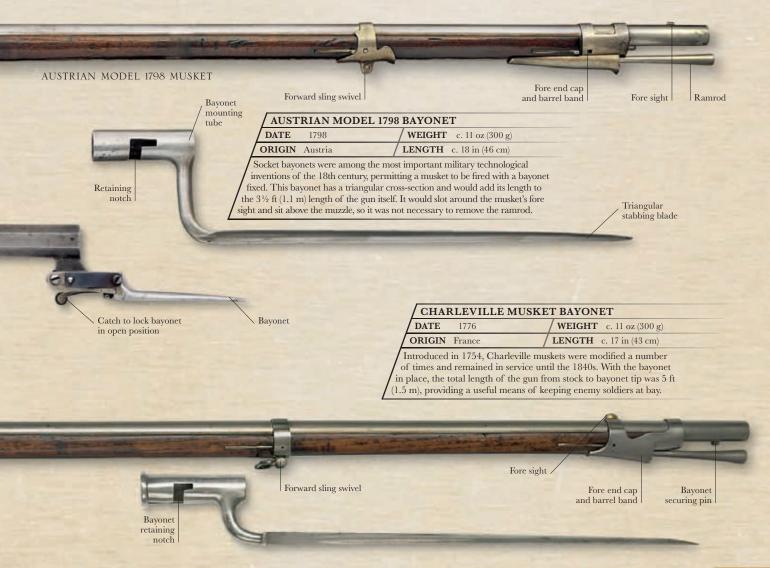




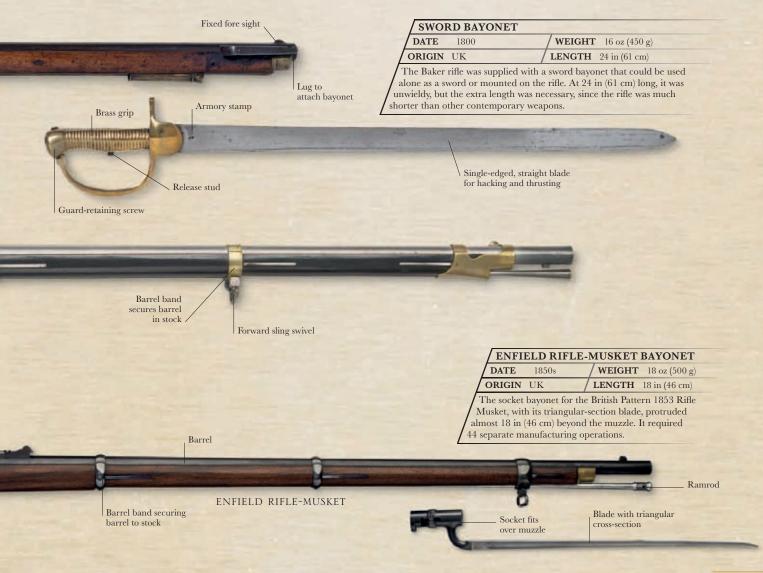












### BAYONET TACTICS

Bayonets transformed the power of the ordinary foot soldier. By adding a bayonet to the musket, an infantryman could function both as a shooter and a pikeman (*pp. 176–77*), thereby gaining a tactical advantage over a nearly invincible cavalry.



Bayonets made an important contribution to the battefield when they appeared during the 17th century. First, they provided an offensive capability—infantrymen could make

a bayonet charge at the enemy and break his lines. This was especially important since firepower alone was rarely decisive before the advent of rapid-fire weapons in the 19th century. The infantryman was typically trained to focus on parrying the enemy's thrust before driving the bayonet into his chest. Second, the bayonet could also be used as a defensive tool. Cavalry charges, for example, would be largely ineffective against tight, disciplined squares or lines of bayonet-armed infantry, since horses were reluctant to impale themselves on steel spikes.





#### NORTH AMERICAN HILT WEAPONS

Although wood and stone implements remained in use, by the late 18th century, Native Americans were purchasing and using weapons with metal blades or heads of European and Euro-American origin, which they often customized with decorative motifs.

Many items shown here were not primarily designed for combat, but instead had a range of practical or symbolic uses, from hunting to performing religious rites. Yet tomahawks and clubs remained fearsome weapons in the hands of a skilled warrior.







BOWIE KNIFE

 DATE
 c. 1820
 WEIGHT
 18 oz (500 g)

 ORIGIN
 USA
 LENGTH
 9½ in (25 cm)

The archetypal American blade, the Bowie knife was designed by Rezin P. Bowie, brother of Battle of Alamo hero James "Jim" Bowie. The knife, with its heavy butcher's type blade, was initially used as a hunting tool, but later became popular as a self-defense weapon.

Sheath made of red leather



SHEATH

Hardwood handle

Straight cross-guard

Concave clip-point (tip clipped to make it thinner and sharper)

Totem figure of raven on bear's head

#### TLINGIT FIGHTING KNIFE

 DATE
 19th century
 WEIGHT
 18 oz (500 g)

 ORIGIN
 USA
 LENGTH
 20 in (50 cm)

The Tlingit people of the northwest Pacific coast were skilled metalworkers, producing good-quality copper and iron blades. The handle of this knife is wrapped in leather and topped with a fine totem carving, which is inlaid with abalone shell. Fighting in close combat, the Tlingit warrior would wrap the loose leather strap around his wrist to ensure a secure hold upon the weapon.









#### NORTH AMERICAN WARRIOR

Prior to their contact with European colonizers, Native-American warriors chiefly used weapons such as the bow, tomahawk, spear, and club. Even after the introduction of firearms in the 16th century, the Native Americans continued to fight in the more traditional ways, favoring ambushes and hit-and-run battles over the formal, ordered tactics of the European settler armies.



The Native-American way of war was largely based upon stealth, surprise, camouflage, and concealment. Many Europeans misinterpreted such tactics as underhanded and cowardly. By employing these tactics, however, the Native Americans could avoid sacrificing their already dwindling population and fight using the same techniques they used for hunting. During the 17th and 18th centuries, firearms became popular among Native-American tribes, although traditional weapons were still used in combat until the end of 19th century.

	/ PIPE	TOMAHAWK		
,	DATE	c. 18th century	/ WEIGHT	c. 23/4 lb (1.2 kg)
	ORIGIN	North America	LENGTH	c. 15 in (38 cm)

The tomahawk was a type of ax, used as both a utility tool and a weapon. Pipe tomahawks, such as the example shown here, had a tobacco bowl at the back of the axhead and a hollow handle, so they could be used as smoking pipes as well. Tomahawks were often thrown as missiles; the warriors calculated the right amount of spin to apply so that the blade, not the shaft, struck the target.





## OTTOMAN EMPIRE SWORDS

The Ottoman Empire, at its height from the 15th to the 17th century, was founded by Turks who migrated to Anatolia (now in Turkey) from Central Asia. Their curved swords reflect these origins, being derived from the Central Asian Turko-Mongolian saber of the 13th century. Europeans first encountered these blades in wars with the Ottomans and called them scimitars (a term used to refer collectively to curved Asian swords). Many of the swords shown here date from the 19th century but are typical of the Ottoman Empire at its peak. Similar weapons were used across the Islamic world, from North Africa to Persia and India.



PERSIAN	KILIJ

DATE Early 19th century | WEIGHT 21 oz (600 g)
ORIGIN Persia | LENGTH 32 in (81 cm)

Persian craftsmen were acknowledged masters of sword-making. The *kilij* was first used in the Ottoman Empire in the 15th century. Over time, its blade showed many variations. This example has a deep curve cut away along its back edge, and has a distinctive flared tip called a *yelman*.







# OTTOMAN WARRIOR

From the 14th to the 18th centuries, the Ottoman army of the Turkish sultans was one of the most professional military forces in the world. Well trained and skilled, the Ottoman warrior used the *kilij* (a curved sword) with deadly precision.



There were many different types of soldier in the Ottoman army. The slave-soldier janissaries—part of the sultan's standing army—acted as elite infantry, in

contrast to the dispensable *azab* foot soldiers. Ottoman cavalry ranged from heavy shock troops to light scouts. Yet all were bound together as a unified, disciplined, tactically intelligent whole. The Ottoman warriors were feared for their proficiency with weapons, particularly the *kilij* seen here. This curved sword had a flaring tip called a yelman or "false edge" that enhanced its cutting power and could sever a head with a single stroke. Cavalry used either these swords or long spears, and protected themselves with long coats of chain mail and helmets.

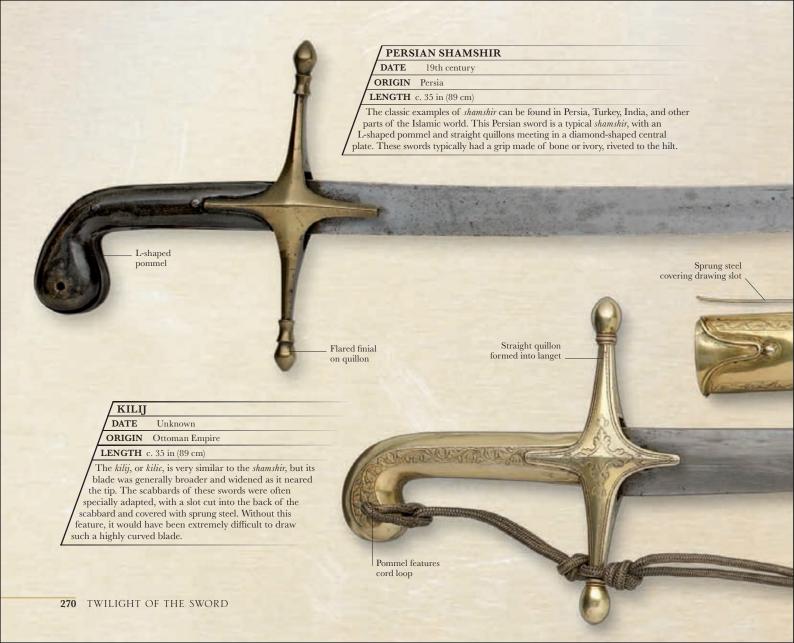


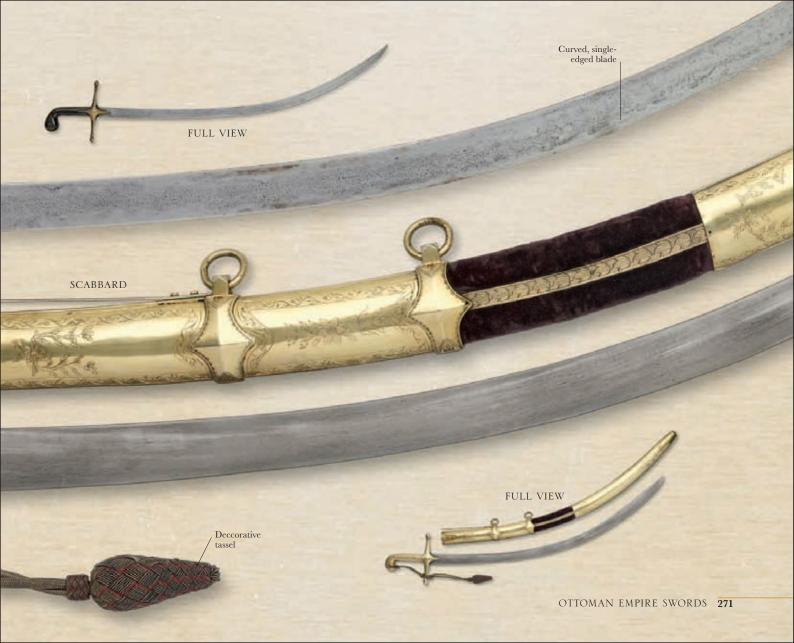




# WESTERN TROOPS AND OBSERVERS WERE STILL ENCOUNTERING TURKISH BLADES IN COMBAT WELL INTO THE 20TH CENTURY.

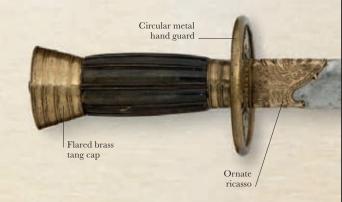


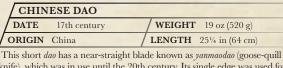




#### CHINESE AND TIBETAN SWORDS

For the Chinese, the four major weapons of a warrior were the staff, the spear, and two swords—the single-edged dao and the double-edged jian. While the straight-bladed jian was the more prestigious of the two, the curved dao was more practical and easier to use. As in Europe, by the 19th century, swords in China were fast becoming ceremonial items. The military tradition of Tibet is often forgotten, but the Tibetans fought many wars and developed their own significant tradition of manufacturing swords, which were loosely related to Chinese models.

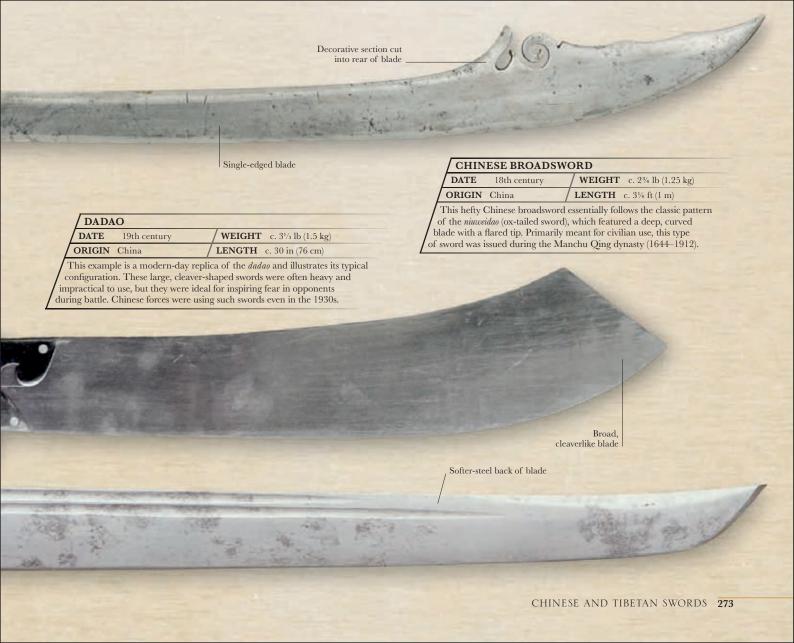




knife), which was in use until the 20th century. Its single edge was used for slashing and its point for thrusting at an opponent. The blade was made of

multiple layers, similar to Japanese swords. The core of hard steel, which was exposed at the cutting edge, was sandwiched between layers of softer steel. Curved grip







DATE 1736-95 **WEIGHT** 23/4 lb (1.25 kg) ORIGIN China LENGTH 31/2 ft (1.07 m)

With its straight, double-edged blade, the jian was the weapon chosen by Chinese swordsmen to show off their skills. It was also worn by high officials as part of their ceremonial regalia. This jian dates from the reign of Emperor Qianlong (r. 1735–96), the fourth emperor of the Manchu Qing dynasty (1644-1912).

Lobe-shaped quillon



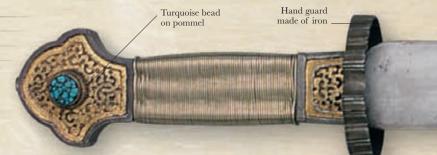
Pommel attached to tang of blade

Gilded collar

#### TIBETAN SWORD

**WEIGHT** 34 oz (950 g) DATE 18th century ORIGIN Tibet **LENGTH** 31/4 ft (1 m)

The long blade of this Tibetan sword exhibits elaborate, swirled patterns of mixed steel on both faces. The highly decorated pommel and the grip wrapped in silver wire indicate that the sword was meant for an individual of high status.

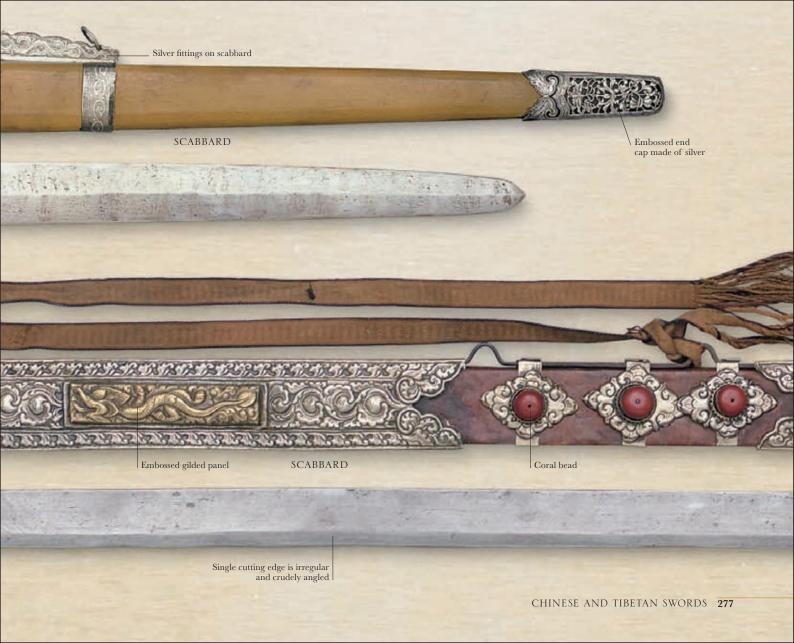


Lacquer coating on scabbard





A large and elaborate sword with a poor-quality blade this weapon was undoubtedly intended for ceremonial use. The scabbard, which is made of wood and covered in brown leather, is finely decorated with silver, gilding, and coral.



Black lacquered grip

Small, circular ring guard / LIUYEDAO

DATE c. 17th-18th century

**WEIGHT** c. 32 oz (900 g)

**LENGTH** c. 36<sup>2</sup>/<sub>3</sub> in (93 cm)

ORIGIN China

The liuyedao was a gently curved, saberlike weapon used in China from the 14th to the 20th centuries. A single-edged weapon generally wielded by cavalry, it was primarily a slashing rather than a thrusting weapon. However, in some liuyedaos, the back-edge near the tip was also sharpened for penetration.

SHUANJIAN

DATE 18th century

WEIGHT c. 11 oz (300 g)

ORIGIN China

**LENGTH** c. 16 in (40.5 cm) This blade was actually one of a set of paired swords,

or shuangjian, both contained in the same scabbard. The fighter would wield the two swords at the same time, one in each hand. Such a style of fighting required cutting and thrusting qualities from the sword, so the blade is double-edged but also has a fairly sharp point.

Short, backward-facing quillon

Diamond cross-section blade



# NINJA

The origins of the ninja—specially trained covert agents of feudal Japan—are lost in time and legend. Few texts mention them before the 15th century, but from then on, these shadowy figures played a central role in the world of Japanese politics and warfare. They were employed by feudal lords in a variety of roles, ranging from sabotage to supporting military campaigns. The last mention of ninja in battle was during the time of Tokugawa Iemitsu (1604–51), a *shogun* (commander) of the Tokugawa clan. Ninja continued to operate covertly until the end of the 18th century, by which time political stability in Japan meant that there was little use for their lethal skills. Yet their techniques lived

on, in various manuals of covert warfare written in the 17th and 18th centuries. These techniques were later codified in *ninjutsu*, a form of martial arts characterized by stealth and camouflage.



The ninja utilized an unusual range of weaponry that reflected their covert roles. This included classic Japanese swords, such as the *tachi* (*pp. 194–95*), as well as a variety of specialized weapons such as *shurikens* (*pp. 284–85*). Some weapons, such as the *ninjato* shown below, are possibly the invention of modern Hollywood, but have become an integral part of modern *ninjutsu*.





JAPANESE SPECIAL WEAPONS

The covert operations of the Ninja (pp. 280–81) required a variety of specialized weapons beyond the classic sword. Throwing weapons such as shuriken, meaning hand-hidden blade, were used as basic missiles and could be tipped with poison to make them lethal—without this, these weapons would actually cause only minor injuries. Chain weapons combined lengths of chain with blades, iron balls, or hardwood shafts, enabling them to cut, entangle, or strike. This gave the warrior some tactical advantage if confronted with a conventionally armed samurai.

Weighted ball

KUSARIGAMA

DATE 18th century ORIGIN Japan

The chain and blade, or kusarigama, was used to entangle the enemy or his weapon, making it possible to draw him in and stab him. The weighted end of the chain was swung over the head, and then whipped toward the enemy. Sometimes the weight itself proved lethal. The weapon shown here also features a thick iron finger guard and brass reinforcing rings along the shaft.

Thick hardwood shaft Hooked blade

Iron

finger guard



#### **BO SHURIKEN**

DATE c. 18th century

ORIGIN Japan

Thrown from a distance, a bo shuriken, meaning stick blade, was a long metal spike with one or both ends sharpened. It could be thrown in a variety of ways: underarm, overarm, sideways, or backward; and with or without spin.

Cord binding provides a grip Flared center for extra penetration

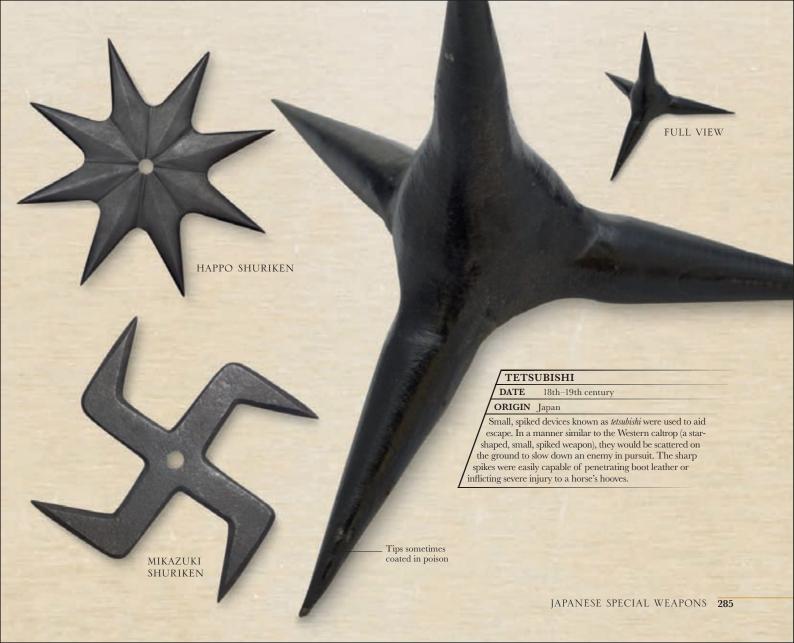
#### HARIGATA SHURIKEN

DATE c. 18th century

ORIGIN Japan

Harigata means needle-shaped, and these shuriken were probably so called due to their resemblance to the thick needles used for stitching leather armor. Although they had the potential to be thrown, they were more often gripped and used as easily concealed stabbing weapons.





# KENJUTSU

Literally meaning the art of the sword, *kenjutsu* refers to the traditional Japanese art of swordfighting, practiced by the samurai since the 4th century ce. The proponents of *kenjutsu* set up several major schools between the 14th and 16th centuries, but during the later Edo period (1603–1868), the number of schools spread dramatically, as the warrior class sought to preserve its skills with swords, such as the *katana* shown here.

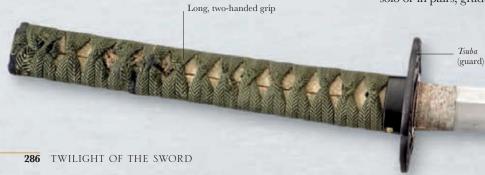


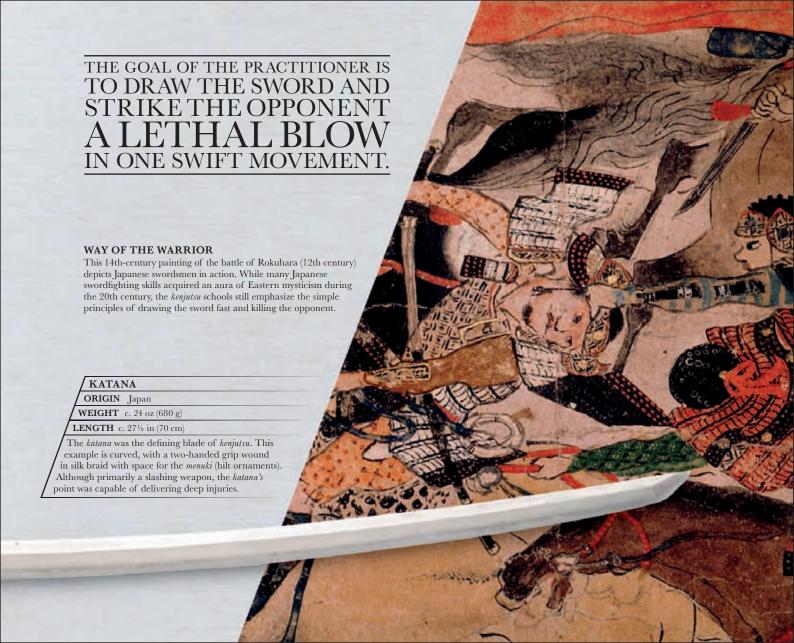
During the 19th century, practitioners of *kenjutsu* began to train with wooden swords—known as *bokken*—which were roughly the same size, weight, and shape of the *katana*. This move enabled the fighters to engage one another more

realistically, delivering full-power blows without the risk of death or serious injury. In the late 1860s, public interest in *kenjutsu* began to decline, possibly because of the growing domination of firearms. However, the Japanese military and police revived interest in swordfighting skills, ensuring that the ancient art form survived into the 20th century.



Kenjutsu or kendo—its modern-day equivalent—emphasizes speed, fluidity, and balance in its techniques. Footwork is essential for both movement and the power of the cut. A fighter's goal is to end the combat as quickly as possible, targeting areas such as the neck, forearms, head, and abdomen. Practice mainly consists of kihon (basic techniques) and kata (sequences of techniques), either solo or in pairs, graduating to free-form kumite (sparring).





## INDIAN SWORDS

During the late 18th and early 19th centuries, the British East India Company extended its control over most of India, paving the way for the establishment of the British Raj. These political changes had a limited impact upon Indian swordsmiths, who continued to produce swords in a great diversity of forms. These included not only mainstream swords in the Muslim and Hindu traditions—chiefly forms of *talwar* and *khanda*, made for the Indian princely courts that survived under British patronage—but also many regional or tribal variants, some distinctly strange to Western eyes. British officers often took swords home with them as souvenirs, many of which are now on display in museums.

Dish-shaped pommel



Cutting edge

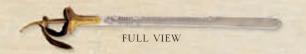


Embroidered wrist strap

Long pommel spike

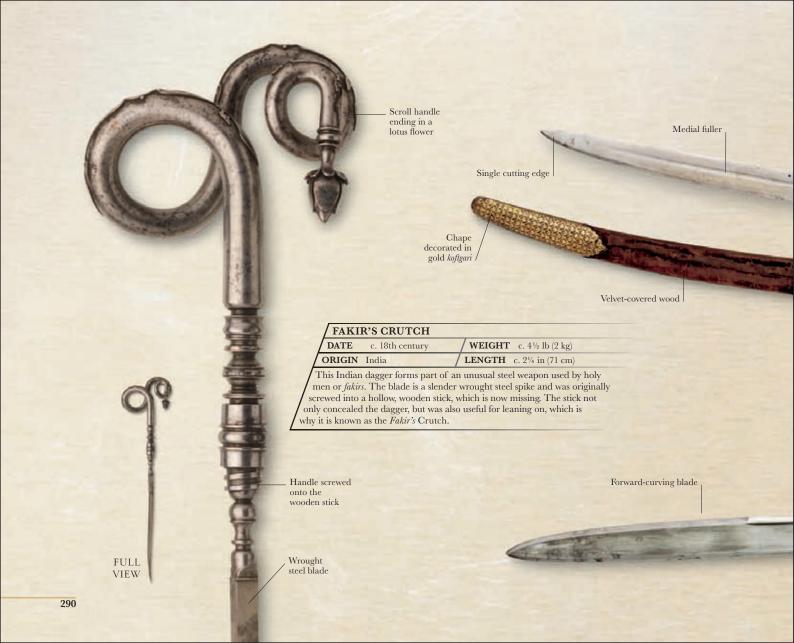


Reinforcement decorated with floral pattern



/ KHANDA			
DATE	19th century	/ WEIGHT	2¾ lb (1.3 kg)
ORIGIN	India /	LENGTH	39 in (99.3 cm)

Influenced by the Hindu Maratha culture, this khanda has a straight, pattern-welded blade that widens toward the tip. As is common in khandas of this period, the lightweight, flexible blade is stiffened by reinforcements that run two-thirds of the length of one edge and a shorter way up the other.

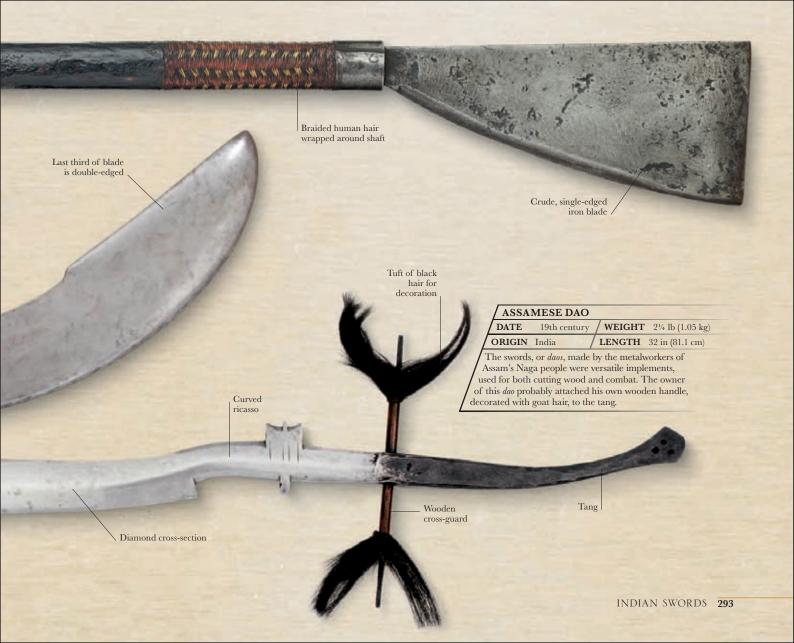




/ SC	OSUN PATTAH
DAT	FE 19th century / WEIGHT 2½ lb (1.05 kg)
ORIO	GIN India / LENGTH 34 in (87 cm)
blade— sword ex	itional form of Indian sword, a sosun pattah has a forward-curving -the reverse of, for example, the curve of a talwar. This type of cists in both Islamic and Hindu variants. The sosun pattah shown an Indo-Muslim-style hilt.
	Fuller

Iron hilt decorated with silver inlay





### INDIAN BLADES

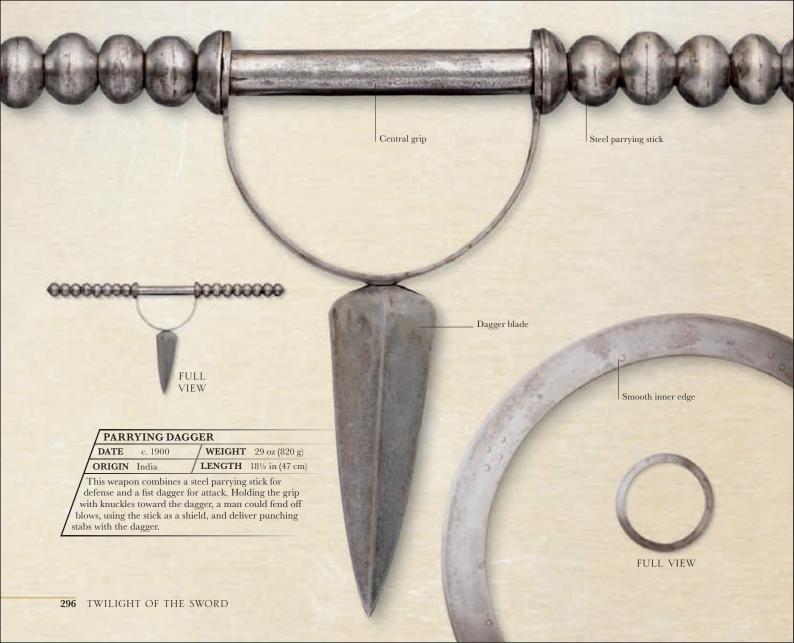
Throughout the 19th century, the Indian subcontinent was the source of some of the world's most effective and original *melée* weapons (weapons used in close combat). These included a range of fearsome sharppointed knives with double-curved blades such as the *bich-hwa*, meaning scorpion, and various forms of fist dagger that allowed the warrior to deliver a stabbing blow to an enemy with a punching movement. Long metal sticks called parrying sticks were weapons that Indian armies had in common with African tribal fighting units. These sticks, sometimes combined with daggers, were used to fend off enemy attacks.



Ivory hilt

Diamond cross-section at point









## ANIMAL HORN WAS A NATURAL WEAPON—ROCK HARD BUT FLEXIBLE ENOUGH TO WITHSTAND POWERFUL STABBING BLOWS.



## INDIAN STAFF WEAPONS

The domination of India by British forces in the late 18th and 19th centuries, armed at first with muskets and later with rifles, rendered staff weapons increasingly obsolete on the subcontinent. To be effective, Indian armies had to deploy artillery and firearms. Traditional varieties of battle-ax and mace continued to be found in the armories of Hindu and Muslim princes, and among the weaponry of tribal peoples. Many of these weapons were, however, more ceremonial than practical.

Decoration shows beast emerging from tiger's mouth

ANKUS

 DATE
 19th century
 WEIGHT
 21 oz (590 g)

 ORIGIN
 India
 LENGTH
 14½ in (37 cm)

This ankus, or elephant goad (a long stick with a pointed end used for prodding animals), is of traditional form, with the spike and hook designed to control the animal by applying pressure on the hide. The goad is so splendidly decorated, however, that it was probably meant for display and ceremonial purposes rather than for practical use.

Gilded brass pommel unscrews to reveal a hidden blade

BHUJ

DATE 19th century | WE
ORIGIN India | LEN

WEIGHT 31 oz (870 g)

LENGTH 28 in (70.4 cm)

The knifelike battle-axe known as a bhuj was used from earliest times in tribal India and adopted by Hindu and Muslim armies. It is often called an "elephant's head" because of the characteristic decoration between shaft and blade.

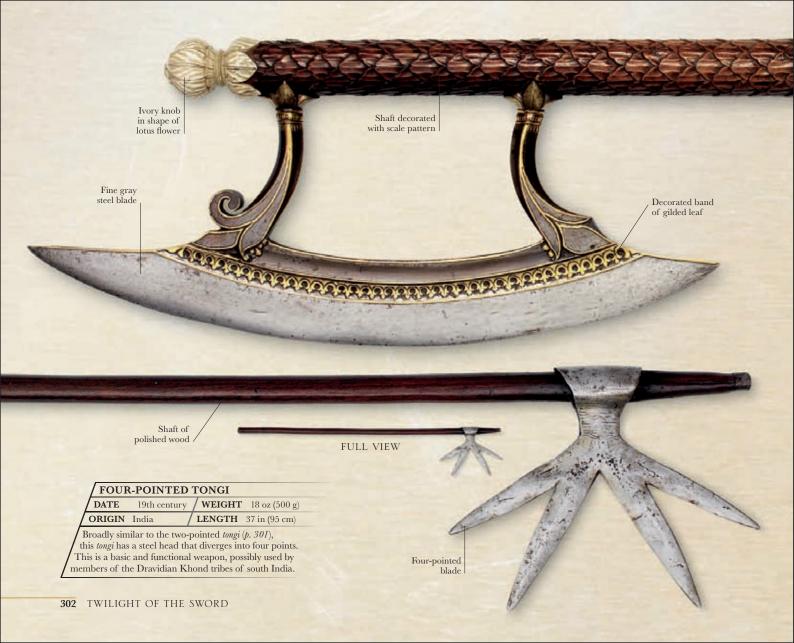
Metal shaft

Brass elephant'shead decoration

FULL VIEW

Silver and gold inlay







## AFRICAN BLADES

The blades of Africa displayed a greater diversity of shapes and purposes than those in the West and in Asia. Toward the north of the Sahara and along the eastern coast, which were under Arab and Ottoman Turkish influence, weapons broadly resembled those found across the Islamic world. However, to the south of the Sahara, the prevailing traditions produced distinctive weapons that ranged from a simple stick with pointed branches to elaborately decorated metal paddles. Many of these weapons were in use long after European colonial powers took over parts of Africa during the 19th century.







Engraved silver chape

#### CEREMONIAL DAGGER

DATE 19th century | WEIGHT c. 11 oz (300 g)

ORIGIN North Africa | LENGTH c. 16 in (40.6 cm)

This extremely ornate ceremonial dagger features a simple African hardwood hilt but has rich gold work on nearly half of the blade's length. The pattern on both blade and scabbard is typical Islamic scrollwork.

Long, thin blade

#### / FLYSSA SWORD

 DATE
 19th century
 WEIGHT
 c. 2½ lb (1 kg)

 ORIGIN
 Morocco
 LENGTH
 38½ in (97.7 cm)

This sword was designed to break open chain-mail armor, which was worn in parts of Africa well into the 19th century. The steel blade features elaborate inlaid brass decoration, and the hilt terminates in an animal motif.

Brass-engraved wrapping around grip

Circular steel pommel

Straight quillon with diamond cross-section

#### KASKARA

DATE 19th century / WEIGHT c. 21 oz (600 g)
ORIGIN Sudan/Chad / LENGTH c. 35 in (90 cm)

The kaskara, with its straight, double-edged blade, is a type of broadsword with a recognizable connection to medieval European broadswords. Arabic script runs along the edge of the blade, which has a triple fuller to lighten it.

### ZULU WARRIOR

A cattle-herding tribe in southern Africa, the Zulus developed into a military power in the 19th century—a transformation attributed to their chief Shaka (r. 1816–1828).



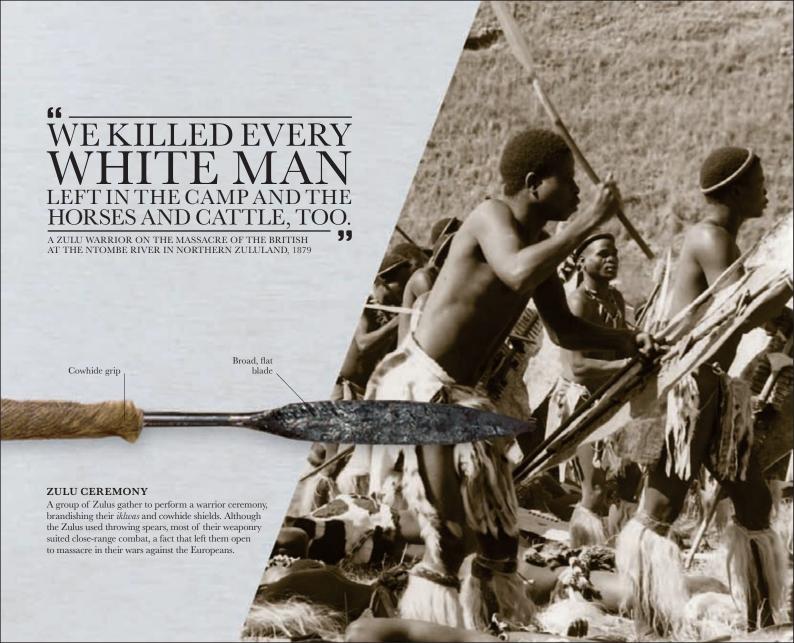
During Shaka's reign, the Zulus became the dominant military power in the region. Shaka introduced new weapons and tactics, and transformed the military structure. He recruited men between 18 and 20 years old for military service and organized them into regiments, each with separate dresses and shield

colors. The Zulus had earlier relied heavily on the *assegai*, a throwing spear, but Shaka encouraged them to use the *iklwa*, a deadly stabbing spear shown below. The *iklwa* and the *knobkerrie* club were effective close-quarters weapons. Protected by long cowhide shields, Zulu armies would attack en masse, attempting to encircle the enemy. First, they would advance at a steady pace, banging their shields with their spears. At about 100 ft (30 m) from the enemy, they would throw the *assegai* and run at full pace to fight with the *iklwa* and club. Though aggressive, these tactics proved costly against Europeans equipped with firearms.

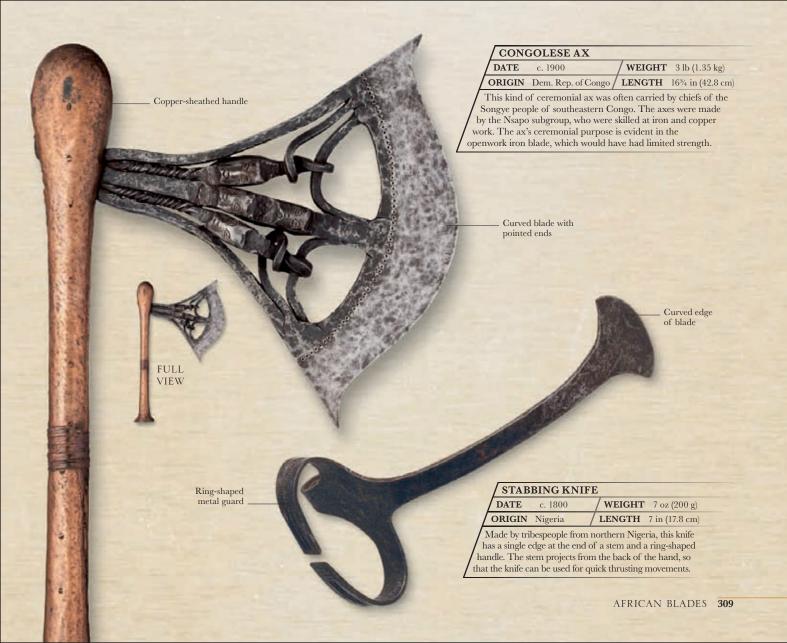
	/ IKLW	A	
/	DATE	19th century	<b>WEIGHT</b> c. 21/4 lb (1 kg)
$\mathcal{L}$	ORIGIN	Southern Africa	<b>LENGTH</b> c. 4 ft (1.2 m)

The *iklwa* had a long, flat blade, about 14–18 in (35–45 cm) in length, attached to a staff. It was plunged into the enemy with an underhand motion, maximizing the force of the thrust. The *iklwa* is apparently named after the noise made when pulling it out from the enemy's body.

Hardwood shaft cut from single piece of wood











# DAGGERS OF OCEANIA

The Polynesians and other peoples who occupied the islands of the Pacific before the arrival of Europeans in the 17th century were much given to warfare. They engaged in forms of combat ranging from revenge raids and ritualized skirmishes to wars of conquest and extermination. Their weaponry was limited, consisting largely of wooden clubs, cleavers, daggers, and spears, sometimes edged with sharpened bone, shell, coral, stone, or obsidian. These weapons were intricately decorated and often held as objects of religious significance and valued as heirlooms.



/ MAORI PATUKI			
DATE	c. 1860	/ WEIGHT	11 oz (310 g)
ORIGIN	New Zealand	LENGTH	14½ in (37 cm)

The Maori, Polynesians who colonized New Zealand around 1200 CE, were among the most warlike of Pacific peoples. This two-edged club, known as a patuki, comes from New Zealand's North Island and may have been taken as plunder by the British after their victory in the Maori War of 1860–69. It is decorated with iridescent haliotis shells, as well as elaborate carvings.

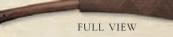
Plain wooden handle

#### POLYNESIAN CUTLASS

 DATE
 19th century
 WEIGHT
 3¼ lb (1.5 kg)

 ORIGIN
 Polynesia
 LENGTH
 30½ in (77.5 cm)

The shape of this weapon, either a club or a cleaver, is most unusual, perhaps modeled on the cutlasses that were carried by European sailors. The Polynesian craftsman has blended that exotic shape with intricate indigenous carving—triangular sections and geometric motifs—that covers the head of the weapon.





### MAORI WARRIOR

Originally farmers and sailors in Polynesia, the Maori settled in New Zealand between 800 and 1300 ce and soon established a reputation as ferocious fighters. Warfare was a central part of their culture and, until the advent of the British in the 19th century, Maori clans frequently fought among themselves over land rights, feuds, and slighted honor, and for vengeance.



Maori battles were extremely bloody and merciless, with dead enemies sometimes eaten in an act of ritualistic cannibalism. All male Maori were trained from boyhood to be *toa* (warriors).

They would band together in times of conflict, typically in groups of 70–140 men. Combat ranged from ambushes and surprise attacks on enemy villages to open, prearranged battles. Maori weapons typically included stone axes, wooden spears, and clubs, sometimes with a cutting edge made of sharpened stone, bone, coral, or shell. Traditional Maori warfare was transformed when Europeans introduced firearms. Maori tribes, now armed with muskets, fought a series of highly destructive wars among themselves, called the Musket Wars (c. 1810–30). These, combined with wars against the colonists, decimated the Maori as a military force by the late 19th century.



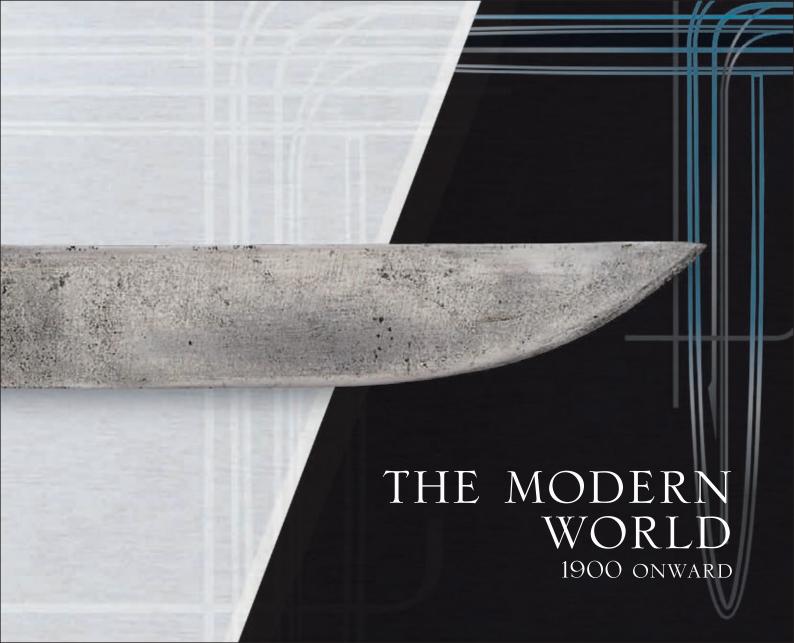
Spearhead in shape of areho (tongue)

	/ TAIA	TAIAHA		
1	DATE	c. 18th century	<b>WEIGHT</b> c. 31/4 lb (1.5 kg)	
Γ	ORIGIN	New Zealand	<b>LENGTH</b> c. 6 ft (1.8 m)	

This traditional *taiaha* is a bladelike club crafted from a single piece of wood. The broad striking blade at one end was used like a slashing sword, while the spearhead at the other end was used for stabbing attacks.







OLDIERS TODAY FIGHT almost exclusively with guns, artillery, missiles, and bombs, not cold steel. Yet, the fact remains that even in the age of modern warfare, knives are still found on the belts of most soldiers. During the Vietnam War (1955–75), for example, fighting knives were used by US special forces in close-quarters combat against the Viet Cong. Similarly, in the Iran–Iraq war (1980–88), both sides launched bayonet charges against enemy trench lines. Even during the Second Gulf War (2003–09), Scottish soldiers of the Argyll & Sutherland Highlanders made a bayonet charge in southern Iraq. Such events remind us that the blade still has a lurking and primitive presence in warfare.



The 20th century saw the final demise of the full-blown sword as a combat weapon. However, there were still some lingering traditionalists. In 1908, for example, the British Army officially introduced a brand-new cavalry sword—an excellent blade that fell out of use as the cavalry switched from horses to mechanized vehicles. In Eastern Europe, however, the Russian cavalries continued to make feisty sword-drawn charges against the German forces in World War I (1914–18) and even in World War II

(1939–45). Predictably, however, they suffered terrible losses against defenders armed with machine guns with an extremely high rate of fire. Toward the end of World War II, Allied soldiers in the Pacific and Southeast Asian regions faced suicidal rushes from Japanese soldiers armed with bayonets and *katana* swords. The *katana* was sometimes used by Japanese officers for committing ritual suicide when facing certain defeat.



Although the sword was fast becoming obsolete, the bayonet—an essential weapon of the infantry in the 18th and 19th centuries—showed its worth once again during the two world wars. During World War I, after the artillery had stopped pounding the enemy lines with gun fire, soldiers on the Western Front often had to cross noman's land and launch bayonet charges at enemy trenches. The typical bayonet at this time was formidably long—the blade of British M1907 sword bayonet measured 17 in (43 cm)—and came in single-edged, double-edged, or spiked varieties. Yet the extreme length of these bayonets was a hindrance in the closed confines of a trench. This, therefore, led to broad innovations in terms of more practical fighting knives. Soldiers even

sharpened entrenching tools such as the metal spades or posts that supported barbed-wire columns to use as weapons, or used vicious-looking brass-knuckle knives. Such weapons were crude but lethal in close quarters.



Soldiers were still equipped with bayonets during World War II, but by this time blades began to be used for other purposes as well, such as chopping firewood or cutting through forest undergrowth. In Germany, knives took on a special ceremonial significance among the ranks of the Wehrmacht (navy, army, and air force) and the Schutzstaffel (SS) and similar Nazi formations. Their blades were often inscribed with Nazi oaths such as "My Honor is Loyalty." In the Allied armies, by contrast, the growth of special forces units such as the British commandos, the US and British airborne forces, and the secret service agencies demanded dedicated combat and assassination weapons. This led to the development of blades such as the Fairbairn-Sykes (FS) fighting knife and the US KA-BAR, which were specially designed for close combat. Their value as last-resort weapons meant that fighting knives continued to be considered as desirable tools of war long after World War II ended. Military bayonets, however, were shortened considerably post-World War II, and tended to combine fighting and practical tools such as wire cutters in one unit.



In Africa and parts of Southeast Asia, blades were not only used for fighting, but also performed a variety of ceremonial roles. Elaborate curved daggers were used in initiation and puberty rituals, while long, cheap machetes acted as improvised weapons. Elsewhere in the world, the sword remains confined to more formal purposes. No longer the weapon of choice on the battlefield, it still enjoys a special status in the ceremonial practices of most military forces, and is often a standard part of officers' dress uniform. The sword represents individual martial skill at its purest, and for that reason alone it will continue to embody the warrior spirit, if only on the parade ground rather than on the battlefield.

#### THE MODERN WORLD

## GERMAN AND ITALIAN BLADES

European armies entered World War I with faith in the bayonet charge as the key to victory in infantry combat. Reality proved different: troops advancing with bayonets fixed were mowed down by machine guns and rifle fire. The soldiers cynically claimed that bayonets were more useful for opening cans than for combat. However, bayonets have remained in use, although, typically, with shorter blades. Fighting knives, which proved their worth in the trenches during the 1914–18 war, were used by special forces in World War II and were useful close-combat arms for the general infantry. Bayonets also retained

#### **GERMAN S84/98 BAYONET**

 DATE
 1940s
 WEIGHT
 14½ oz (420 g)

 ORIGIN
 Germany
 LENGTH
 15 in (38.2 cm)

This bayonet was introduced in 1915 as a cheap and sturdy attachment for the Mauser Gewehr 1898 rifle. It has no muzzle ring and is held to the rifle by a long groove in the pommel. The grip has a flash guard to deflect hot gases from the muzzle post-firing. This model was produced up to World War II, which is when this example was made.

Wooden hilt

Steel flash guard



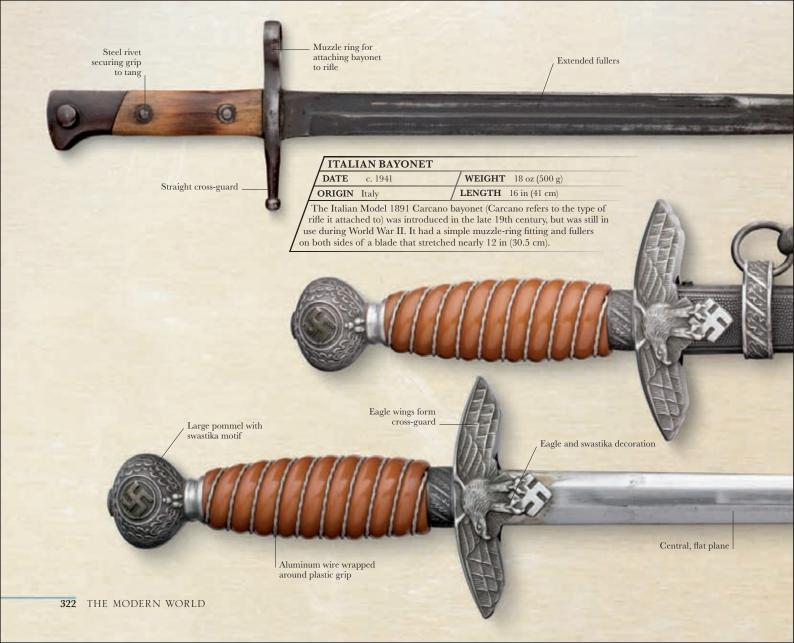


Wide fuller

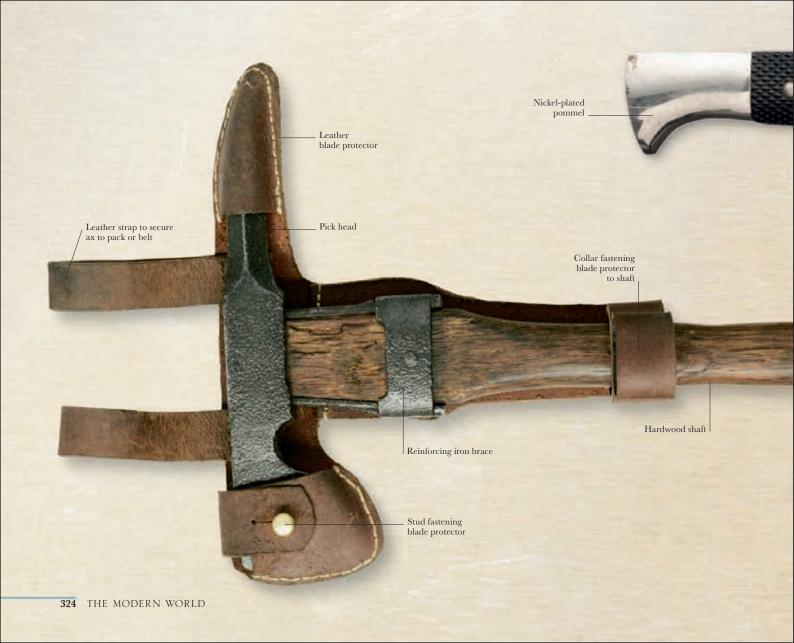
Ogival (pointed arch) tip

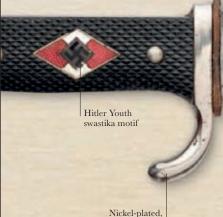
a certain ceremonial status, particularly in Germany and other Axis countries.











curved cross-guard



Painted leather

#### GERMAN TRENCH AX

**DATE** c. 1915

**WEIGHT** c. 31/4 lb (1.5 kg)

ORIGIN Germany / LENGTH 21 in (53.3 cm)
Trench axes were essential pieces of gear on both sides during World War I, useful for chopping firewood

and preparing bunkers, emplacements for military equipment, and other structures. When necessary, they could also be effective combat weapons—particularly for small-party, trench-raiding operations.

SCABBARD

#### HITLER YOUTH DAGGER

**DATE** c. 1937

**WEIGHT** c. 11 oz (300 g)

ORIGIN Germany

**LENGTH** 10½ in (26.6 cm)

Although introduced around 1935, the Hitler Youth dagger shown here is of a c. 1937 design, indicated by the Blut und Ehre ("Blood and Honor") motto etched into the blade, a feature that was discontinued soon after. The hilt has a grip made of checkered bakelite, with a swastika motif and a nickel-plated pommel and cross-guard.

#### ALLGEMEINE-SCHUTZSTAFFEL DAGGER

F	DATE 1	930s /	WEIGHT	11 oz (300 g)
	ORIGIN Go	ermany	LENGTH	13 in (33 cm)

This dagger belonged to a branch of the *Schutzstaffel* (SS), or the "Protection Echelon" of the Nazi party. Called *Allgemeine-SS*, or the "General-SS," this branch had a noncombative role. The dagger has a dark wood grip, dyed with vegetable pigments to achieve the requisite black, with the motto "My Honor is Loyalty" etched on the blade. The hilt features the Nazi eagle and SS runes.



## Meine Chre heißt Treue

Double-edged blade

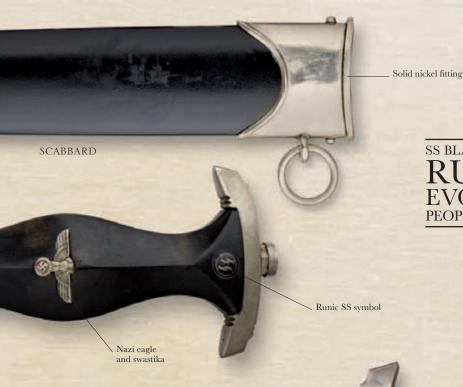
SS motto "My Honor is Loyalty"

#### STURMABTEILUNG DAGGER

1	<b>DATE</b> c. 1934	/ WEIGHT 11 oz (300 g)
Γ	ORIGIN Germany	/ LENGTH 13 in (33 cm)

This dagger was issued to the *Sturmabteilung* (SA), or the "Assault Section"—the paramilitary forces of the Nazi party. The hilt, which was made from various woods such as oak, pear, and walnut, features the Nazi swastika and eagle motif. The runic SA initials are also visible at the base of the hilt, and the motto "Everything for Germany" runs down the center of the blade.

Double-edged carbon-steel blade



SS BLADES COMBINED NAZI SYMBOLS WITH

PEOPLES OF PAGAN NORTHERN EUROPE.

Nazi eagle and swastika Runic SA symbol GERMAN AND ITALIAN BLADES 327

SA motto "Everything for Germany"

## WWII BRITISH COMMANDO

The term "commando" was first used for citizens of the Boer republics in South Africa, who were commandeered by law to fight during the Boer War (1899–1902). It was revived during World War II to address the elite, specially trained, amphibious forces of the British army, who, alongside the Special Air Service (SAS), conducted clandestine raids in enemy-occupied territories.



Formed in June 1940, commando units drew personnel from all corners of the British forces. What set them apart from other soldiers was their training, plus the missions they undertook. They were taken to remote locations and instructed in unusual fighting techniques. Their training typically included outdoor survival, map-reading, mountain climbing, signaling, amphibious warfare, covert surveillance, and demolitions. Recruits also learned unarmed combat and knife-fighting skills. The commandos adopted the Fairbairn—Sykes knife (right), using it for disposing sentries and for hand-to-hand combat. William Fairbairn—a former police chief of Shanghai, China, and one of the knife's designers—taught them how to use his knife in the most destructive way against human targets. The commandos

fought in almost every theater of war from 1940 to 1945, and in major operations such as the attack on Dieppe, France, in 1942 and the D-Day landings at Normandy in 1944. While the British Army's commando units were disbanded after the war, the Navy's Royal Marine Commandos continued in service. They serve to this day as a small elite within Britain's armed forces.



/ FAIR	FAIRBAIRN-SYKES FIGHTING KNIFE		
DATE	1941-45	/ WEIGHT	8 oz (230 g)
ORIGIN	UK /	LENGTH	12 in (30 cm)

Modeled on daggers used by Chinese gangsters, this knife was developed in the 1930s by William Fairbairn and his colleague Eric Sykes. British commandos used it for hand-to-hand combat, since the sharp edge of this slender knife could easily penetrate the rib cage. The knife was light and well balanced, making it suitable for throwing as well.



## BRITISH, AMERICAN, AND ALLIED BLADES

Maker's initials

The Allies during both world wars were just as deeply wedded to the retention of bayonets as the Axis nations. Yet times were changing. During World War I, a bayonet charge was still a feature of combat, but by World War II it had largely become an anachronism. The later war was characterized by mobility, firepower, and frequent urban warfare, and mounting a lengthy bayonet was awkward and inappropriate. Yet the rise of special forces and paratroopers in World War II created the need for pure close-quarters fighting knives, while bayonets were put to other uses, such as cutting through foliage.





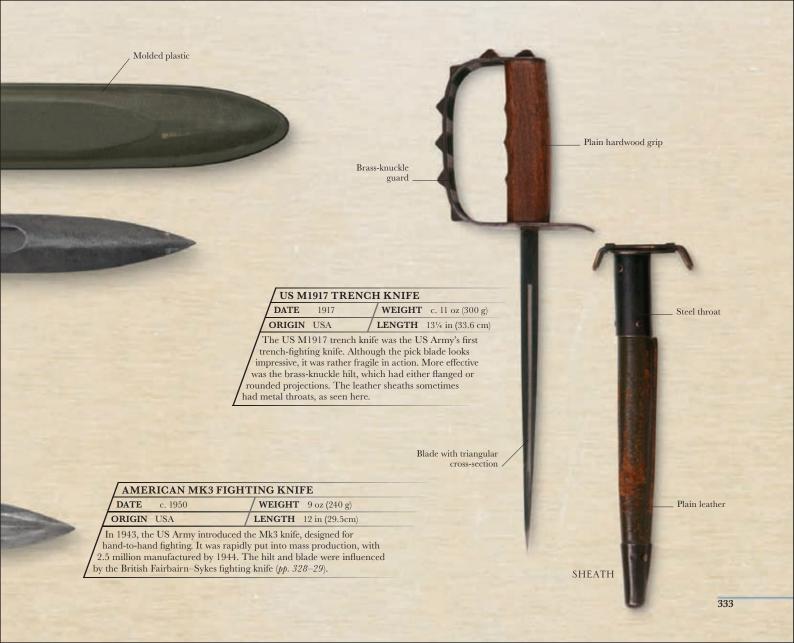
Blade welded into hilt













Deep fuller

#### BRITISH 1907-PATTERN SWORD BAYONET

/	DATE	1914–18	/ WEIGHT	18 oz (500 g)
/	ORIGIN	UK	LENGTH	22 in (56 cm)

Designed for the Short Magazine Lee-Enfield rifle, the 1907-Pattern was based on the Japanese Arisaka bayonet. Its long blade was intended to give a soldier extra reach, but, in the trench warfare of 1914-18, its length made it unusable when detached as a sword, since the blade glittered at night and the crosssection made penetration difficult. It was awkward to remove the sword from the enemy's body, especially if it was embedded deep. As a bayonet, it changed the rifle's shooting capabilities and made it difficult to hold the rifle steady.

Steel chape

#### NEPALESE KUKRI

1	DATE	c. 1940	/ WEIGHT	32 oz (900 g)
Γ	ORIGIN	Nepal	LENGTH	c. 18 in (45.7 cm)

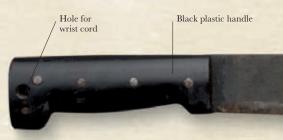
This Nepalese blade became the signature weapon of the Royal Gurkha Rifles, which gained a fearsome reputation for its use during World War II. The blade is angled at about 20 degrees, a feature that increases the knife's effectiveness as a chopping weapon. A narrow fuller is visible at the back edge of the blade. This part is also very thick, providing strength and weight.



# THE MACHETE WAS THE BASIC TOOL OF JUNGLE OPERATIONS, PERMITTING TRAVEL THROUGH TANGLED VEGETATION AWAY FROM THE TRAILS.

Hip mounting \_\_\_\_\_\_

Loop binding to hold handle \_\_\_\_\_



US M1942 MACHETE

The M1942 machete had an 18-in (45.7-cm) blade and was based on a commercial model manufactured by the Collins company. Like the British example above, this machete has a hole in the handle for a wrist cord, which prevented the machete from being dropped or lost when in use.

Single-edged blade

> Brass protector strip



	/ BRIT	ISH MACHETE			
/	DATE	1944	/ WEIGHT	c. 28 oz (800 g)	
Γ	ORIGIN	UK /	LENGTH	20½ in (52 cm)	

This machete was issued to British and Commonwealth forces in Southeast Asia during World War II. It had a particularly heavy counterbalanced head to provide momentum when chopping thick foliage, and it came with a leather sheath that often rotted in the humid climate.



Stitched seam

Blade flares at end to maximize cutting edge

SHEATH

Water-repellent canvas material

## GURKHA

The Gurkhas are a people originally from Nepal and feared by the Japanese during World War II. The notch in the northern India, known for their indomitable courage. blade may have religious significance (resembling the hoof of the cow, a sacred animal for the primarily Hindu Gurkhas) During the 19th century, they were recruited by the British East India Company, and continue to serve the British forces or it may simply help to drain fluids away from the handle. to this day. The Indian Army retains six Gurkha regiments and the Nepalese Army has two Gurkha battalions. The Gurkhas' best-known weapon is the kukri. Capable of removing an enemy's head in a single swipe, the kukri was particularly Notch at base of blade Single-edged, curved blade KUKRI Ridged hardwood DATE c. 1940 **WEIGHT** c. 32 oz (900 g) grip with flared base ORIGIN Nepal **LENGTH** c. 18 in (45.7 cm) The wooden handle and broad, curved blade with a notch make this a typical example of the Gurkha's kukri. It is large enough to be wielded two-handed, and is effective for cutting through jungle undergrowth as well as in battle.



## JAPANESE BLADES

Although they were no longer practical on the World War II battlefields of the Pacific, China, and Southeast Asia, swords were still commonly worn by Japanese officers for ceremonial purposes, and were even drawn during infantry charges against the enemy or for executing prisoners. Japan's wartime shortages in raw materials meant that the quality of these swords left a lot to be desired. Their blades tended to be of standard machine steel. This, along with their poor construction quality, soon rendered these swords ineffective in hot and humid jungle or island conditions.



Crude, improvised handle

SHIN-GUNTO

 DATE
 Late 1930s
 WEIGHT
 24 oz (680 g)

 ORIGIN
 Japan
 LENGTH
 27½ in (70 cm)

This shin-gunto, or army officer's sword, is based upon the traditional design of the wakazashi (pp. 198–203). It has a painted metal scabbard, unlike later wartime examples (c. 1944 onward), which had lacquered wooden scabbards, sometimes called marine mounts.

Cord-wrapped hilt

Tsuba

 Suspension ring to attach scabbard to belt loop or straps



## MODERN AFRICAN BLADES

By the early 20th century, most of the industrial world had given up on blades as combat weapons in favor of firearms. However, the use of knives and swords for combat in Africa persisted for longer. Many were in use long after the European colonial powers took over most parts of

Africa. The types of blade and the design of various knives and swords reflected the cultures from which they came. Post 1945, the sale of firearms to Africa increased as the communists and capitalists wanted to fuel proxy wars. This spread of firearms pushed elaborate, expensive blades into largely

ceremonial roles.





Silver overlay

WOODEN-HILTED DAGGER

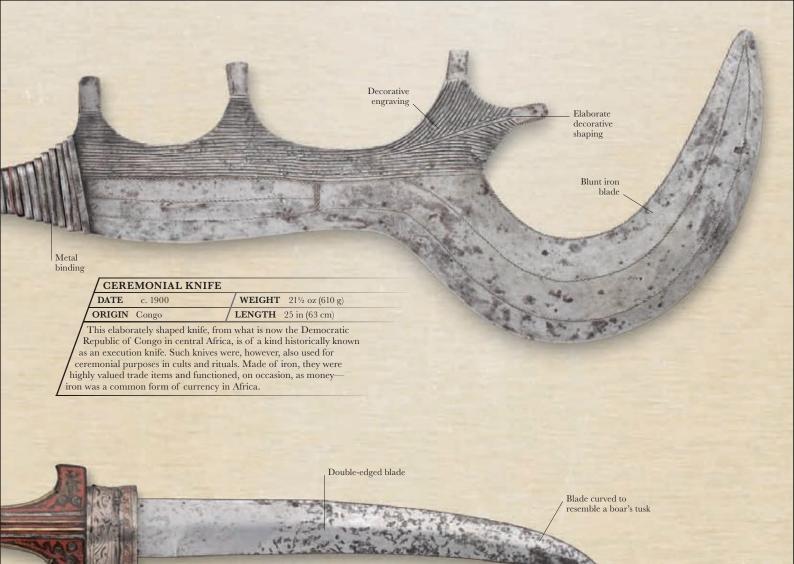
 DATE
 19th century
 WEIGHT
 8 oz (230 g)

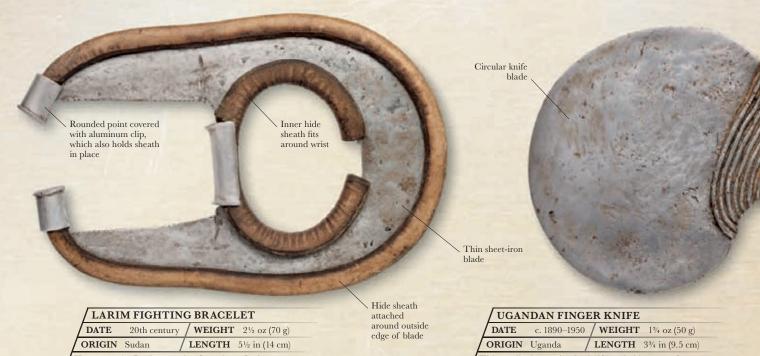
 ORIGIN
 North Africa
 LENGTH
 14% in (37.5 cm)

The peacock-tail shape of this dagger's pommel is functional as well as decorative, providing protection for the back of the hand. It is typical of a *koummya*, a curved dagger used by peoples of northern Africa, especially Morocco. The elaborate sheath, overlaid with silver on one side, was hung on a baldric (an ornamental belt made of silk or leather) and worn on the left hip.



SCABBARD





Known to the Larim people of southern Sudan as a nyepel, this unusual weapon is a two-pointed knife worn on the wrist. Before entering a fight, the warrior would remove the outer sheath, uncovering the sharp edge and slightly rounded tips of the hammered iron blade. Similar fighting bracelets and sheaths were used by other Sudanese peoples.

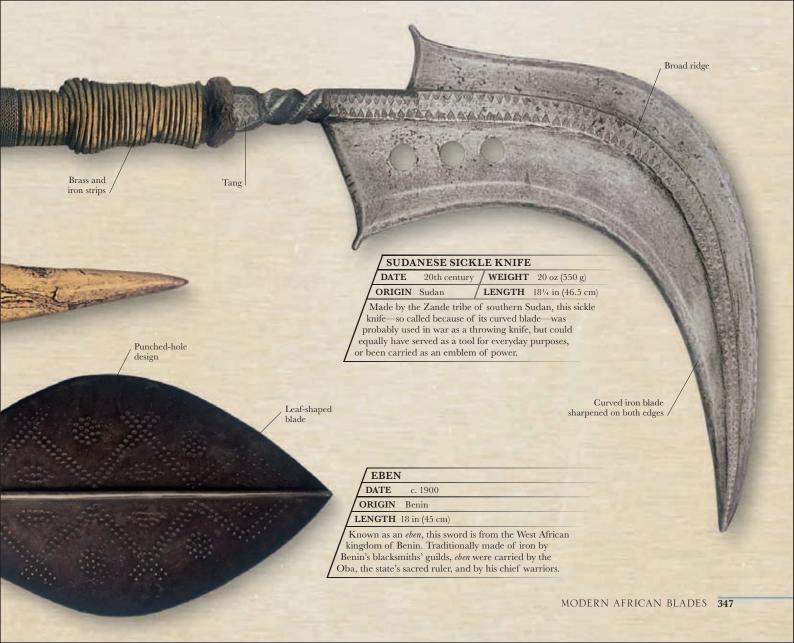
This small, almost circular knife probably comes from the Labwor people of northeastern Uganda. Made of iron, it was worn on a finger. Aside from fighting, it could also be used for everyday purposes such as cutting meat. Its advantage as a weapon lay in its diminutive size—it could be easily concealed in the hand.

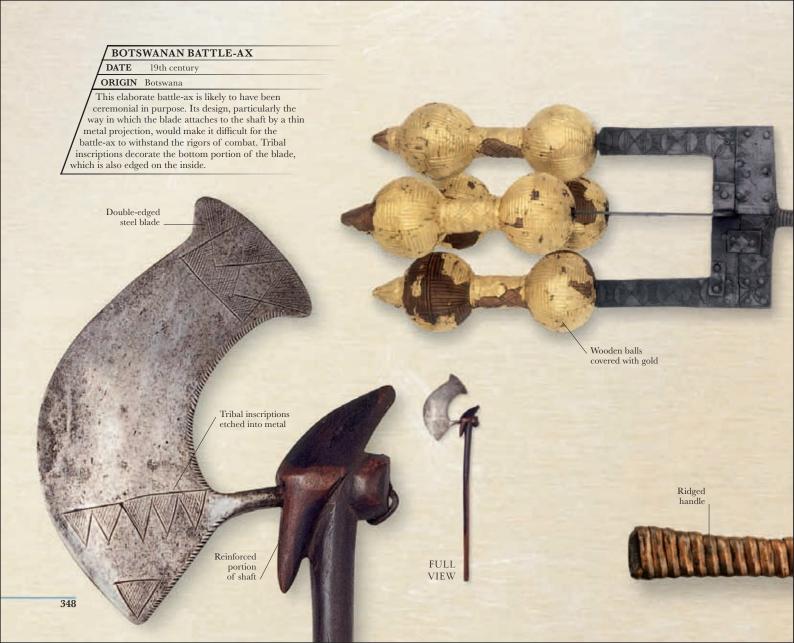
Triangular pattern decoration

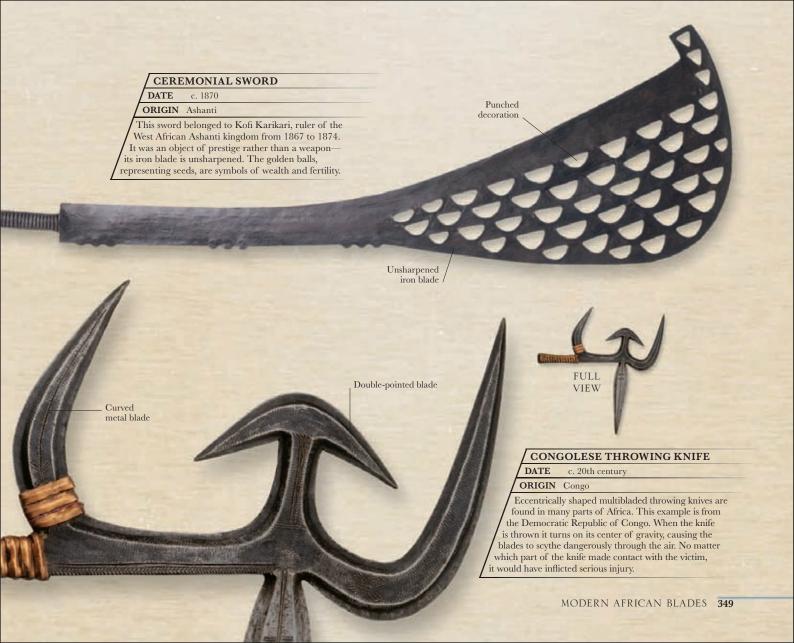
Straight back of blade











## POSTWAR BAYONETS

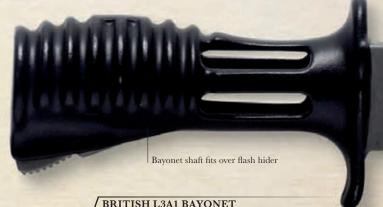
In the aftermath of World War II, it was widely recognized that bayonets had a limited role on the modern battlefield, at least in terms of combat. Yet as last-resort weapons, or for utility purposes, they still had a place. Postwar bayonets tend to be short (long bayonets would adversely affect the balance of assault rifles), and often combine the properties of fighting knife and bayonet in one. Many also incorporate special utility features such as wire cutters.

> Wire-cutting blade tip

Serrated top edge

	/ IRAQ	J AK47	BAYONET		
,	DATE	1970s		/ WEIGHT	11 oz (300 g)
ſ	ORIGIN	Iraq	/	LENGTH	10 in (27 cm)

This Iraqi copy of the AK47 bayonet has all the features of the original. A slot in the blade enables the bayonet to lock to the scabbard, turning the knife into a scissorlike wire cutter. The synthetic hilt does not conduct electricity, which means the knife is capable of cutting electrical cables.



BRITISH	L3A1	BAYONET	

DATE	1990s	/ WEIGHT	c. 9 oz (250 g)
ORIGIN	UK	LENGTH	10 in (25 cm)

The bayonet supplied with the LA85 rifle has a shaft that fits over the flash hider of the muzzle, a device that reduces the visibility of burning gases emanating from the muzzle on firing. A lug on the bayonet's scabbard fits the slot in the blade and the ensemble becomes a pair of wire cutters, an idea borrowed from the Soviet AKM rifle.





## **GLOSSARY**

**BARB** A narrow, tapering projection at the end of an arrowhead, pointing backward. Barbs made it difficult to remove the arrow from the victim's flesh after penetration.

**BASKET-HILT GUARD** A hand guard of a sword that encases the wielder's hand like a basket.

**BAYONET** A blade designed to fit into, over, under, or around a rifle's muzzle. This allowed the soldier to use the gun as a stabbing weapon in close-quarters combat.

**BLUEING** A process of chemical treatment, using blue oxide, to prevent steel from rusting.

**BODKIN** A small, pointed multipurpose tool, often part of a hunting kit in 17th-century Europe.

**BODKIN POINT** A small arrowhead with a square cross-section, capable of penetrating armor.

**BOLT** A type of arrow fired from a crossbow. Bolts were shorter and thicker than arrows fired from bows.

**BOSHI** A line of bright steel at the point of a Japanese blade, created when forming the cutting edge of the blade during the process of tempering.

**BOW NOCK** A notch in a bow to attach the string; also a notch in an arrow to keep it in place as the bowstring is drawn.

**BRAZING** A process of joining metals together using a filler solder or alloy, such as brass.

**BROADSWORD** A double-edged cutting sword with a broad blade. Broadswords were extremely popular in medieval Europe.

**CASTING** A process of solidifying liquid metal to a given shape, in a particular mold.

**CHAPE** Protective metallic cap on the tip of a scabbard.

**CLAYMORE** A generic term applied to two types of Scottish sword used from the 16th to the 18th centuries—one was a two-handed sword with a crossguard, the other was a broadsword with a basket hilt.

**CLEAVER** A heavy cutting weapon with a sharp, single-edged blade. Cleavers were an essential component of the medieval hunter's gear and were used for slicing through animal joints.

**COLICHEMARDE** A type of smallsword with a wide forte, often with multiple fullers. Typically, the blade narrowed after the fullers ended. Its light weight made the sword a useful parrying weapon.

**COMPOSITE BOW** A bow made of multiple layers, combining wood with bone, horn, or sinew.

**CROSSBOW** A mechanical bow used for shooting wooden or metal bolts. The user did not have to hold the bowstring manually in order to keep the crossbow loaded.

**CROSS-GUARD** A straight hand guard just below a sword's blade. It extended from both sides of the blade, which made the sword resemble a cross.

**CROSS-SECTION** The shape of a blade when viewed at a right angle to its long axis. It can be of various shapes. Blades with diamond or lozenge cross-sections were thick in the middle, and therefore rigid.

**CUP-HILT GUARD** A hand guard in the shape of a cup; it was popular in the 17th century, when many European rapiers featured cup hilts.

**CUTLASS** A heavy, curved sword, traditionally used by sailors.

**DAISHO** The Japanese term for the pairing of a long sword (*katana*) with a shorter sword (*wakazashi*).

ÉPÉE A fencing weapon developed in the 19th century. Similar in design to the smallsword, it had a blunt tip and was used for thrusting.

**FALSE EDGE** An additional bevel or surface on the back edge of the blade of a sword, which may or may not be sharpened. False edges were used for backhand strikes.

**FERRULE** A metal band used to secure the leather or wire wrapping on a sword's grip; also used as hilt decoration.

**FIRE-WELDING** A process of fusing pieces of metal using fire. Also called forge-welding, this was the only welding process followed until the end of the 19th century.

**FLAKING** A process of repeatedly striking a piece of flint with another stone, until a fine edge remains.

**FLANGE** A projecting rim or collar, typically seen on maces in the medieval period.

**FLINT** A type of hard stone, found in areas of chalk downland. It was extensively used to make weapons in the Paleolithic Age, about 2.5 million years to 20,000 years ago.

**FLUKE** A projecting spike or barb, sometimes hooked, on the head of a polearm or ax. Flukes could penetrate plate armor and were effective parrying weapons.

**FOIL** A light, flexible fencing weapon, with a blunt end. Introduced in Europe in the 18th century, it made fencing safer.

**FORGE** To shape metal by heating and hammering it. The term also refers to the hearth or smithy where forging takes place.

**FORTE** The strongest part of the blade just in front of the hilt. A forte may or may not be sharpened.

**FULLER** A groove running along the length of a sword blade, which both strengthens and lightens it.

**HAMON** A pattern of hardened steel on Japanese blades, created during tempering. *Hamon* varied from sword to sword, and were therefore often considered the signature of the swordsmith.

**HANGER** A type of sword named for the way it was hung from the belt of the user. Originally made for hunting, it became a standard military weapon by the 18th century.

**HATCHET POINT** A sword tip with a diagonally curved front edge.

**HAUBERK** A chain-mail coat or shirt, usually at least of thigh length.

**HEAVY CAVALRY** Heavily armed and armored mounted soldiers, primarily used to make attacks directly into enemy ranks.

**HEAVY INFANTRY** Heavily armed and armored foot soldiers, used mainly for fighting in close ranks against the main enemy lines.

**HILT** The portion of a sword or knife below the blade, including the grip, guards, and pommel.

**JAVELIN** A long, light spear used for throwing.

**JOUST** A medieval tournament game involving mounted, armored knights aiming to unseat each other with a lance strike.

KNAPPING See flaking.

KNUCKLE-DUSTER (BRASS-KNUCKLE) KNIFE A knife with studs protruding from its knuckle guard. The blade was designed for upward stabbing, and the studs were used to punch the opponent.

**KNUCKLE GUARD** An extension of a sword's guard running over the length of the grip; it protected the user's knuckles.

**LANGET** A metal strip securing the shaft of a staff weapon to its head. Also found on some swords, langets extend over both sides of the blade and fit tightly over the scabbard, keeping the sword securely sheathed.

LIGHT CAVALRY Lightly armed and armored mounted soldiers, used principally in raids and skirmishes and for reconnaissance.

**LIGHT INFANTRY** Lightly armed and armored foot soldiers, used primarily for skirmishes or raids.

**LONGBOW** A medieval bow up to 6½ ft (2 m) long, made of a single piece of yew or elm. It provided superior range and penetration compared to shorter bows.

**LUG** On a sword, lugs refer to projections from the blade that

served to deflect or parry an enemy sword blow away from the user.

**MACE** A staff weapon, usually with a spiked or flanged head. Maces were popular weapons in the medieval period, with many ornate examples made in Europe and Asia.

**MACHETE** A heavy, single-edged cutting blade; ideal for operations in tropical and subtropical jungles, it can easily cut through thick foliage. It is also a popular household tool in Latin American countries.

MAIL (CHAIN-MAIL)

**ARMOR** A type of armor made from small, riveted, interlocking iron rings and worn like a coat or shirt.

**MAINGAUCHE** Literally meaning "left hand" in French; also used to describe a dagger held in the left hand. It was a useful weapon for parrying enemy attacks.

**MÊLÉE** A free-for-all battle. The *mêlée* was a popular tournament game between mounted and dismounted knights until the 14th century.

**MORTISE SLOT** A slot or socket cut into a bayonet, designed to fit over a gun's muzzle.

**MUZZLE** The open front end of a gun's barrel to which a bayonet could be fixed.

**PARRYING WEAPON** A weapon used to deflect enemy blows or strikes. These could be of various types, including shields and sticks.

**PATTERN-WELDING** A technique of fusing different pieces of metal, and then folding or twisting the fused metal to form a pattern.

**PIQUÉ** A type of decoration, often with inlay work of metal, ivory, shell, or horn; seen on the hilts of some hanger swords in 17th-century Europe.

**PLATE ARMOR** Armor made of overlapping metal plates, which was more difficult to penetrate than chain-mail armor.

**PLUG BAYONET** A type of bayonet that was inserted into the muzzle of a musket.

POLEARM See staff weapon.

**POMMEL** A counterweight, often spherical, at the top of a sword grip, to provide balance.

**PRESSURE FLAKING** see flaking.

**QUENCHING** A process of hardening steel by heating and then rapidly cooling it.

**QUILLON** The extension of a cross-guard on either side of the blade. Found in various shapes and sizes, quillons protect the user's hand by blocking enemy blows.

**QUOIT** A sharpened metal ring designed to be thrown at the enemy.

**RAPIER** A thrusting sword with a long blade. Although used in combat, it was more closely associated with dueling.

**RICASSO** The unsharpened part of the blade, just above the hilt. It gave the user the option to hold the blade as well as the hilt for a better grip.

**ROCOCO** An 18th-century French style of elaborate ornamentation, also seen on some European sword hilts.

**RONDEL** Derived from the Old French *rond*, meaning "round." The rondel dagger took its name from its disk-shaped guard and pommel.

**SABER** A long, single-edged cutting sword with a curved blade.

**SCIMITAR** A generic name for curved swords of the Islamic world, including the *kilij* and the *shamshir*.

**SEAX** A single-edged blade used by the Anglo-Saxons and Franks as a weapon and as a tool. Saxons probably derived their name from this weapon.

**SHELL GUARD** A hand guard in the form of a circular or oval plate of steel.

**SHURIKEN** Literally the Japanese term for small blades that could be hidden in the hand. They could be of various shapes and were often tipped with poison.

**SMALLSWORD** A thrusting sword, typically with a stiff, triangular blade with unsharpened edges.

**SOCKET BAYONET** A type of bayonet which fits around the muzzle of a firearm, allowing the user to continue firing.

**STAFF WEAPON** A weapon in which a blade or club was attached to a long, commonly wooden, shaft. The long shaft gave a soldier extra reach in combat.

**STILETTO** A long, thin dagger, popular in Italy in the 16th and 17th centuries. It derives its name from the Latin *stilus*, meaning stake or spike.

**SWEPT-HILT GUARD** A hand guard so named because the bars of the guard sweep upward in a curve from the ricasso to the pommel.

**SWORD BAYONET** A type of bayonet with a long blade. It could be used as a sword or mounted on a firearm.

**TANG** The hidden portion of the blade that runs through the hilt and pommel.

**TEMPERING** The process of removing the brittleness accumulated in metal during quenching. The metal is reheated but at a lower temperature than when quenching, and then cooled slowly.

**TILLER** The stock, or main body, of a crossbow, which enabled the user to hold and aim the crossbow in the same manner as a firearm.

**TOMAHAWK** An ax used by native North American warriors.

**WATERING** See patternwelding.

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