

REINVENTING THE SWORD:  
A CULTURAL COMPARISON OF THE DEVELOPMENT OF THE  
SWORD IN RESPONSE TO THE ADVENT OF FIREARMS IN  
SPAIN AND JAPAN

A Thesis

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## **Abstract**

Swords have been used throughout history as weapons of war, as symbols of power and wealth and as national and religious icons. Unlike other weapons however, the sword did not simply fade into the background as technological improvements caused the martial value to lessen.

The primary purpose of this paper is to look at the development of the sword as an object of art, specifically in the countries of Spain and Japan, after the invention of the firearm. A brief history of the development of the sword from the earliest manifestations through the Iron Age is provided as way of introducing the subject.

The researcher then delves into the specifics of the development of the sword in Spain and Japan. Areas of focus include the martial uses, aesthetic values and cultural influences affecting the overall formation of sword cultures in both countries.

The transformation of the sword from a weapon of war to a showpiece of craftsmanship and artistic expression after the introduction of the firearms is then discussed in detail. This discussion includes not only Spain and Japan, but neighboring regions as well. Why this transformation took place and who or what were the primary reasons for it are specific topics of interest in this section.

The researcher concludes that the sword, the weapon upon which empires rose and fell for centuries, has moved into the realm of cultural icon. Increased sale values at auction, the infusion into popular media, such as books, movies and video games, and the growing number of collectors and aficionados all serve as indicators of a thriving global sword society.



# **Chapter One**

## **Introduction**

“Do you know what astonished me most in the world? The inability of force to create anything. In the long run, the sword is always beaten by the spirit.”

~ Napoleon Bonaparte

“The sword is the axis of the world and its power is absolute.”

~ Charles de Gaulle

Since Man's earliest times, the need to hunt, to kill for food, has been an essential aspect for survival of life. Many of Mankind's earliest inventions were tools used in hunting and weapons with which to kill game. Man eventually evolved from a nomadic hunter into more settled agrarian societies, developing systems of agriculture and animal domestication. Most of the inventiveness of this time-period is concentrated on the development of tools for farming, storing and preparing food and maintaining shelters. This is also the time in which we find introduced a more formal, structured society, with village leaders having greater temporal power and decision-making authority.

Despite the move towards more civil societies, weapons were still of vital importance during this period. Hunting was still an integral part of food-gathering. Weapons would also begin to take on a different, more nefarious use sometime shortly after these societies were formed.

Mankind has been in a state of warfare somewhere in the world for most of recorded history. There were certainly skirmishes between clans prior to the formation of settlements. These were limited in scope due to the roving nature of Man at the time. However, once permanent settlements were established, these small scale battles grew in intensity. The reasons behind these struggles were many, including raids for food supplies, slaves, natural resources and

territorial expansion. We do not know exactly when the first clashes arose between settlements. We do know that around 3500 B.C.E., a huge battle destroyed one of the world's earliest cities, Hamoukar, in upper Mesopotamia. Invaders, using clay sling bullets, bombarded the settlement until the 10' walls protecting it collapsed. According to Clemens Reichel, Research Associate at the Oriental Institute of the University of Chicago, "This clearly was no minor skirmish. This was 'Shock and Awe' in the Fourth Millennium B.C."<sup>1</sup> As the frequency of these contests rose, new weapons began to appear. Settlers, who having set down familial and social roots, did not want to give them up without a fight.

By the 3rd millennium B.C.E., during an era commonly referred to as the Bronze Age (c. 3500 – 1200 B.C.E.),<sup>2</sup> relatively large empires had formed and warfare was a common practice. Advances in metallurgy and smithing were mainly in the area of smelting of copper and tin to form bronze. Weapons were being produced on a massive scale, to arm soldiers for war, guards for the aristocracy, and local militia for peace-keeping purposes. Pole-arms were the most common weapon of the time. The earliest daggers began appearing in the middle of the Bronze Age. As advances were made in metallurgy<sup>3</sup>, the dagger would flatten and elongate, eventually transforming into the sword, the weapon upon which empires would rise and fall for the next 3000 years. It is also during this time that we see weapons become more than just mere tools. Vibrant cross-cultural trade networks were beginning to flourish as early as the 5<sup>th</sup> millennium B.C.E., as is evidenced by Syrian artifacts found in archaeological sites in the Badarian culture of Upper Egypt (Midant-Reynes, 2000). Highly skilled craftsmen began making weapons of a higher aesthetic value, many with elaborate dressings or cases and some more decorative than useful. Such weapons were generally considered a sign of wealth. They were given as gifts, used as trade goods and handed down as heirlooms.

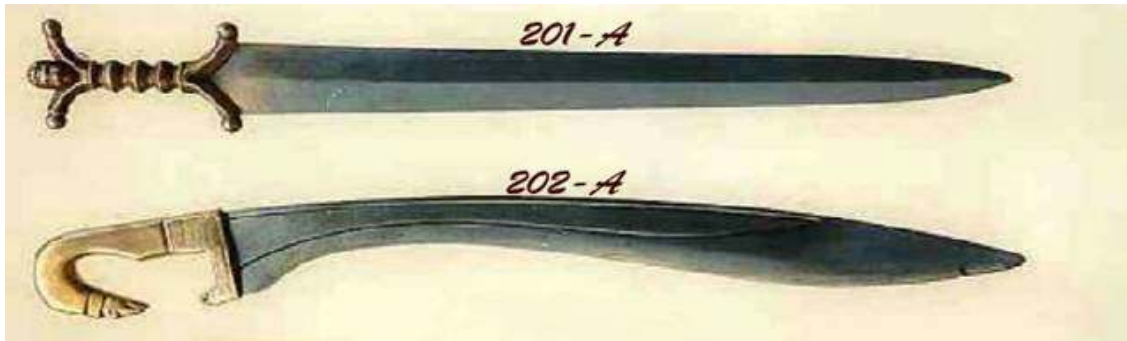


Figure 1-1: Roman and Middle Eastern Bronze Age Replicas

The dates of the era known as the Iron Age vary globally, but for research purposes, we will use 1200 – 550 B.C.E. Iron smelting probably began in Anatolia or the Caucasus around 1900 – 1800 B.C.E. (Tylecote, 2002), however, bronze continued to be the primary metal of choice for weapons until around 1200 B.C.E. The many beneficial qualities of iron weapons included improved durability, higher tensile strength and sharper edges. Once techniques were mastered in the use of iron for weapons, they quickly replaced their bronze counterparts.

New technologies were constantly being explored by smiths around the globe. In China, swords recovered from the Qin emperor's tomb dating from 210 B.C.E. were determined to have been coated with chrome. This would help to keep the edge sharper for extended periods.<sup>4</sup> Archaeological records indicated that around 300 B.C.E., a new type of steel was discovered for the first time in India. It is called *wootz* steel.<sup>5</sup> *Wootz* quickly became legendary, being incredibly sharp while being able to hold its edge even after a large amount of use. Some historical records even go so far as to indicate that weapons made of *wootz* steel became sharper with use. *Wootz* weapons were highly prized and the secret of their forging was very closely guarded, so closely in fact, that it disappeared sometime in the first millennium C.E. Smiths have tried for centuries to recapture the technique, many coming close, but none have been able to reproduce a sword that chemically matches true *wootz*. Recent discoveries in Sri Lanka of

wind-powered furnaces provide one possible solution to the mystery of *wootz* manufacturing. In theory, the seasonal monsoon winds could have produced temperatures high enough in such furnaces to create high-quality steel such as *wootz*.

Damascus or Damascened steel was first forged sometime around 900 C.E. There is some debate as to the origins of the name. The most popular theory is that it was first forged near Damascus, Syria. Other theories cite that, due to the rippling, water-like appearance, the name is derived from the Arabic word *damas* (water). Another possible source is the swordsmith himself. Abu Rayhan Biruni (973 – 1048 C.E.), a noted Persian historian, scientist, and scholar, claims to have been very impressed by the watery appearance of the swords created by a man named Damasqui. In appearance Damascened steel is very similar to *wootz*, but it does not share all of the qualities which made *wootz* so legendary.

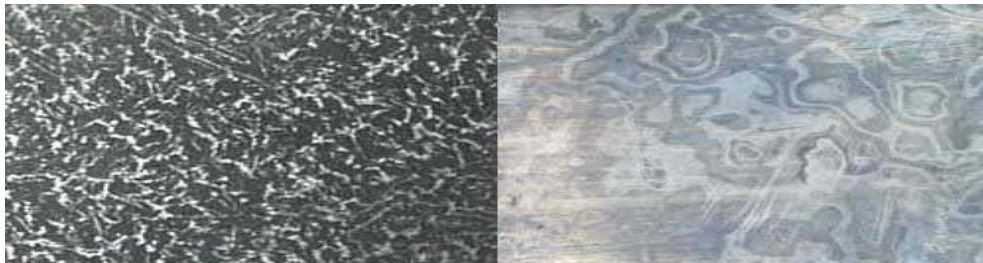


Figure 1-2: Examples of *wootz* and Damascened Steel

*Wootz* steel became known in Europe through trade and travel. Attempts were made to mimic the qualities and look of this remarkable metal, and while they mostly failed at reproducing weapons with the amazing properties, they did manage to copy the look to some degree. This new type of forging, first seen around 100 – 200 C.E., came to be known as the ‘pattern-weld’. While *wootz*, and later Damascened, depends on the chemical composition for its appearance, pattern-weld gets its appearance from the blending of several types of metal, forming a type of banding across the finished metal. A 7<sup>th</sup> century C.E. sword recently unearthed at Bamburgh, England was made up of six individual strands micro-welded together

with flux. Swords with four strands have been found before in Europe, but this is the only known sword to have six strands. Graeme Young, director of archaeology for the Bamburgh Research Project, said:

Weapons were highly prized and weaponry making was a jealously-guarded secret. Great care would be taken to ensure the loyalty of their weapon smiths. Gifts were given out to the top weapon smiths to ensure their loyalty and that the technology of the day was kept secret. (Northants Evening Telegraph, 2006)

Pattern-weld forging was a common practice in Europe for nearly 1500 years, yet the quality of the blades never matched those of their Near- and Middle-Eastern counterparts. Aesthetically however, the weapons created using this technique are stunningly beautiful and fetched the highest prices from the aristocracy.

While the European weaponsmiths were creating beautiful showpieces, the Japanese were discovering another type of pattern-welding. Around 700 C.E., during the Nara period, the Japanese swordsmiths were forced to find a new forging technique. Too many weapons were breaking during combat, thus calling for a sword that could better withstand the stress caused by repeated slashing cuts into armor. The technique they discovered, while differing in appearance from the European style, is another pattern-welding process. The Japanese developed it to such an extent that today they are considered the masters of pattern-weld.

One discovery that would change the world forever was gunpowder, the first known chemical explosive and propellant (Needham, 2004). There is no direct record of how gunpowder came to be known in Europe. Many scholars believe that the knowledge spread west from China to the Middle East and then Europe, most likely along the Silk Road. Other historians believe that gunpowder was probably discovered independently by different cultures at different times. James Partington writes in his *History of Greek Fire and Gunpowder*:

Gunpowder is not, of course, an 'invention' in the modern sense, the product of a single time and place; no individual's name can be attached to it, nor can that of any single nation or region. (Partington, 1998)

Regardless of whether or not it was discovered independently, it was certainly recorded first in China, where it is considered to be one of the Four Great Inventions of ancient China. In 142 C.E., Wei Boyang makes mention in his book, *The Kinship of the Three*,<sup>6</sup> of an experiment he conducted where the ingredients are said to 'fly and dance' in violent reaction. We cannot be sure that he is speaking of gunpowder at this time. We do know that by 300 C.E., alchemist Ge Hong of the Jin dynasty (265 – 420 C.E.) conclusively recorded the chemical reactions caused when saltpeter, pine resin and certain carbonaceous materials were heated together in his book *Book of the Master of the Preservations of Solidarity*. Approximately 1000 years later, the first portable, handheld weapon using gunpowder was invented. Like many such inventions, where it was first created remains open to much debate, with equally viable claims coming from the Chinese, the Mongols, the Arabs and the Europeans. The first name truly attributed to this weapon is 'gonne'.<sup>7</sup> The advantages of the *gonne* were low cost, easy mass production, the ability to be used by fairly poorly trained troops, and a measure of control over their manufacture and the manufacture of ammunition.

Now, after nearly three millennia, swordsmiths around the world have begun to find that the craft which supports their livelihood is quickly becoming obsolete. No longer is the crafting of simple, serviceable weapons sufficient. Now, to find a new niche in societies quickly becoming enamored by the firearm, they must begin making swords of remarkable beauty and high aesthetic value. The simple craftsman must now take on the guise of true artisan. It is this transition, which takes place at various times globally, that I wish to discuss in more detail, especially related to the countries of Japan and Spain.

## End Notes

<sup>1</sup> Found in the online press release from the University of Chicago entitled “University of Chicago-Syrian team finds first evidence of warfare in ancient Mesopotamia”.

<sup>2</sup> Dates vary --- In China, the Bronze Age starts around 2100 B.C.E., while in Europe, it does not begin until around 1800 B.C.E.

<sup>3</sup> Early swords were shorter due to the tensile strength of bronze, causing it to bend when flattened and elongated more than 24-30”.

<sup>4</sup> According to the popular show Mythbusters, airing on the Discovery channel, terra cotta batteries were discovered in China dating from around 220 B.C.E. Though their use was unknown, one possible explanation offered was electroplating. This could be the method in which the swords were coated with chrome. (Episode 29, March 23, 2005)

<sup>5</sup> ‘Wootz’ may have originally been a mistranscription of *wook*, an anglicized version of *ukku*, the word for steel in many south Indian languages.

<sup>6</sup> More commonly known as *Zhouyi cantong qi*, it is both a commentary on the *I Ching* and a treatise on the alchemical ideas of the time.

<sup>7</sup> Etymology: ‘*gonne*’ probably comes from the Scandinavian female name *Gunnhildr*, both parts of which mean ‘war’, from the medieval habit of giving large engines of war female names.

## **Chapter Two**

### **History of Spanish Sword Crafting and Aesthetics**

“The voice of every people is the Sword  
That guards them, or the Sword that beats them down.”

~ Lord Alfred Tennyson, *Harold*

“You mean, you'll put down your rock and I'll put down my sword and we'll try and kill each other like civilized people?”

~ William Goldman, *The Princess Bride*

Perhaps no other European culture has had more influence in the development of sword craft and aesthetic than Spain. This can be attributed to the many cultural influxes the Iberian Peninsula has endured over the past millennia.

The discovery at Atapuerca near Burgos in 1997 of human-like remains created a stir in the archeological world. The corpses discovered in a cave date back one million years are thought to be Mankind's earliest known ancestors in Europe. The find has led to a new species dubbed Homo antecessor. Neanderthal sites also abound in Spain, including remains at Xativa and Malaga, dating back some 35,000 years. There is evidence that the Iberian Peninsula was the last refuge for the retreating Neanderthal as they were being pushed out of Europe by the Cro-Magnons. The discovery at Malaga of Neanderthal remains less than 30,000 years old has led to speculation that Neanderthal Man may have coexisted with humans. Though admittedly speculative, much of the archaeological data leads us to believe that the Iberian Peninsula saw some of the earliest examples of Man fighting Man.<sup>1</sup> Of particular interest are Mesolithic<sup>2</sup> cave drawings found at Morella la Vella, Spain. Among these drawings are the earliest known depictions of humans fighting amongst themselves.



While several distinct cultures of early Man are known to have existed on the Iberian Peninsula, the first truly noteworthy are the Iberians. There are two theories dealing with the arrival of the Iberians. One theory suggests that they arrived in Spain sometime during the Neolithic period, with their arrival being dated as early as the fourth millennium B.C.E. Most scholars adhering to this theory believe from archaeological, anthropological and genetic evidence that the Iberians came from a region farther east in the Mediterranean. Others have suggested that they may have originated in North Africa. The Iberians would then have initially settled along the eastern coast of Spain, and possibly spread throughout the rest of the Iberian Peninsula later on. An alternative theory claims that they were part of the original inhabitants of Western Europe and the creators/heirs of the great megalithic culture in all this area. The Iberians would then be similar to the populations subdued by the Celts in the first millennium B.C.E. in Ireland, Britain and France. Though the Iberians lived in isolated communities based on a tribal organization, they became well known for their metalworking skills. Of particular note was their use of a sword known as a *falcata*. Designed with a slight downward curve and

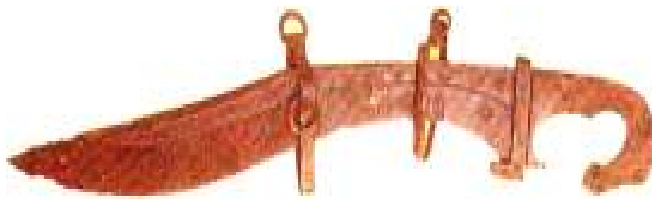


Figure 2-1: Bronze *falcata*



Figure 2-2: *Xiphos* reproduction

weighted heavier toward to the tip of the blade, it was a fearsome weapon when employed against lightly armored foes.

Around 1100 B.C.E., the Phoenicians established their first trade colony on the Iberian Peninsula, at what is modern day Cadiz. The Greeks were not far behind, quickly establishing colonies along the eastern coast. Interestingly, at the battle of

Thermopylae in 480 while most of Greece was still using the *xiphos*, swords were discovered among the Spartans that closely resembled the *falcata*.

Sometime between 900-600 B.C.E., the Celts crossed the Pyrenees and settled in the northern and western reaches of the peninsula, bringing with them iron weapons. The Celts, heavily into symbology and mysticism, often decorated their weapons with glyphs and designs. The resulting combination of Celtic design and Iberian aesthetic produced some of the most beautiful early examples of European sword artistry.

Unfortunately, the Celts believed that when a warrior died, his possessions should be buried with him. As weapons were considered somewhat sacred and thought to possess a life of their own, they were often ‘sacrificed’, or broken, before being buried with their owner, resulting in few undamaged extant examples of these swords today.



Figure 2-3:  
Celtiberian Sword Replica  
and Celtiberian ‘sacrificed’  
sword

During the 6<sup>th</sup> century B.C.E., the Carthaginians invaded the peninsula and overthrew the Tartessians, a people of African origin who had established a formidable kingdom in Andalusia. The Carthaginians then set up a commercial empire in southern Spain and Sicily, thus provoking the Roman Empire. During the Second Punic War (218-201 B.C.E.), Rome succeeded in capturing Cartagena and Cadiz, destroying Carthaginian rule in Spain. The indigenous Hispanic population, though collaborators in the overthrow of the Carthaginians, was not ready to submit to Roman tutelage. It took Rome nearly 200 years to successfully subjugate all of the Iberian Peninsula. During their Iberian campaign, the Roman’s experienced firsthand the effectiveness of the sword that came to be known as the *gladius hispaniensis*. Shorter than the standard



Figure 2-4: *Gladius hispaniensis*

hoplite, the *gladius hispaniensis* was ideal for encounters with foes with longer weapons. Using a buckler or small shield to block, the wielders of the *gladius* would step inside the swing of the longer sword and use their short sword to slash and pierce their opponent with staggeringly brutal efficiency. So impressed were the Romans that, upon their quelling of the Iberian Peninsula, the legions quickly adopted the *gladius hispaniensis*.

Livy, author of *Ab Urbe Condita*, a history of Rome, wrote:

“When they had seen bodies chopped to pieces by the Spanish sword, arms torn away, shoulder and all ... they realized in a general panic with what weapons and what men they had to fight.” (O’Connell, 2002). Because of the sword’s effective use by the Roman legions, it has been suggested by some historians that no other weapon in history has killed more men than the Spanish sword prior to the advent of the firearm.

In the early part of the 5<sup>th</sup> century C.E., several barbarian tribes, pushed westward by the general tide of invasion, began settling on the peninsula. This migration included the Vandals, the Alans and the Suebians, but the most notable of these tribes, the Visigoths, began arriving in or around 415 C.E. (O’Callaghan, 1975). By the end of the century, the Visigoths controlled most of Spain, extending their rule over the other tribes and conquering the last of the Roman outposts. However, the Visigoths were unable to establish an effective government, leading to centuries of civil wars. Visigoth kings did not maintain a standing army but instead relied upon their vassal lords to render military aid when called upon. It was left to the various factions to arm themselves. Not known for any notable contribution to swordsmanship or sword aesthetic, the Visigoth are more commonly considered masters of mounted combat, preferring the lance

and dart to other weapons. The inabilities of the kings to quell the various uprisings and establish an organized and unified society lead to the sudden collapse of the kingdom before the advance of the Muslims early in the 8<sup>th</sup> century.

In 711, Rodrigo, the last Visigoth king, was killed and the Visigoth kingdom was dissolved as the Muslim invaders pushed into the peninsula and conquered Toledo. The next 500 years are marked in Spanish history by the conflict between the Muslim and Christian populaces. Predating the crusades, these conflicts were a precursor of what was to come in the 11<sup>th</sup> century. The Muslims, using superior tactics and numbers, quickly pacified most of the southern part of the peninsula. Their primary weapon was the fearsome Saracen sword, called the *shamshir* or *scimitar*.<sup>3</sup> It was a heavily curved weapon used in large sweeping motions that effectively



Figure 2-5: *Shamshir* and *scimitar* reproductions

negated the technique, favored by the Spanish, of stepping inside the guard of the opponent. Modern science has suggested that the Muslim swords, crafted of the aforementioned Damascus steel, may have benefited from what scientists call carbon nanotubes. These nanotubes, created during the forging and annealing of the steel, could help explain the amazing mechanical properties<sup>4</sup> of these swords (NewScientist.com, 2006). The Christian ‘kingdoms’ were scattered and unable to adequately support one another. After the defeat of the Visigoths, and without a unified Christian contingent to deal with, the Muslims were able to establish strongholds throughout southern Spain.

The Christians were eventually able to perform a counter-insurgent movement, thus dividing Spain into two distinctly different populaces. As the Muslim Empire endured pressures from the Holy Roman Empire and suffered divisions within, the Christians mobilized and were able to recapture Toledo in 1085. Muslims mustered their forces and were able to counter the push by the Christians, but were ultimately unable to retake Toledo. The Christians had begun the Great Reconquest, which lasted until the untimely death of Fernando III in 1252. At the time of his passing, the Muslim territory on the Iberian Peninsula had been reduced to a small area surrounding Granada. The Muslims made one more concerted effort to reestablish their dominion, but it was quickly quelled in 1265, finally restoring peace to the peninsula after centuries of warfare.

With peace restored, Spain was able to fully lend its attention to the plight of its European Christian neighbors, lending support in the form of men and materials to the Crusades. When not involved in the Crusades, nobles and wealthy city-states began to hold martial competitions, attracting knights and men-at-arms from all across Europe. Both the Crusades and this new form of competition greatly affected the social standing of the great military men of medieval times. This in turn affected great changes in the arms and armor of the time, and subsequently in the adornment of both. In Spain, where the populace now included peoples of Roman, Celtic, Visigoth and Moorish<sup>5</sup> descent, this adornment became something of an interesting and unique amalgamation of styles.

New types of swords were being introduced across Europe throughout the middle ages, designed for both real combat and tournament use. As armor became thicker, swords adapted to better penetrate or circumvent heavily guarded areas of the body. The longsword became the most common weapon of most European knights during the early crusades. An effective weapon

for slashing, thrusting and chopping, the longsword was also popular with Christian knights for a more iconic reason. When turned point down and thrust into the ground, it resembled a cross



Figure 2-6: Bastard sword

and was sometimes used as a makeshift altar before battles. During the latter crusades, the bastard sword<sup>6</sup> came into favor, being a bit wider, more tapered and a few inches longer than the longsword, making it more suitable for piercing armor without giving up the slashing and crushing abilities that made the longsword so popular.

While knights preferred the longer, double-edged swords, the common soldiers often went into battle carrying *falchions*. *Falchions* closely resemble modern machetes, being single-



Figure 2-7: Modern *falchion*

edged and wider toward the tip of the blade, causing them to be extremely suitable for chopping and crushing blows. Unfortunately, few *falchions* from the middle ages survive today, due in large part to their use during peacetime for such mundane tasks as chopping wood and cleaving meat.

Another weapon that saw extensive use during the middle ages was the *zweihander* (literally translated ‘two-hander’). Developed in Germany, the *zweihander* was approximately 66 inches in length and weighed between 7 and 14 pounds. It was favored by front line troops that would rush toward pike formations and cut through the lines using large horizontal sweeping motions. In Europe, during times of tournaments, one of the more popular contests was the

greatsword battle, in which two contestants, armed with the English equivalent of a *zweihander*, would proceed to take turns pounding upon each other until one contestant submitted.

During the mid-15th century, in Spain, a new type of sword was developed. This sword was the *espada ropera*. The *espada ropera* was the forerunner of, and in

Spain a contemporary of, the rapier. In fact, the French term *épée rapière* is a derivative of *espada ropera*. The *espada ropera* distinguishes itself from the rapier in that its blade, though thin, could be used to make effective cuts. These swords were first manufactured in Toledo and are first mentioned in an inventory of Don Álvaro de Zúñiga in 1468. The etymology of the term



Figure 2-8: Battle of Kappel (1531) illustrating the use of *zweihanders*



*espada ropera* probably comes from Spanish *ropera*, which means "wearing", though some scholars have argued that it may also come from the Spanish word *raspar*, which means "to scratch". For this reason, many experts believe that *espada ropera* was more a clothes accessory than a weapon. Although its country of origin is Spain, the sword quickly spread all over Europe (Burton, 1987).

Possibly the most famous contribution Spain has made to the science of the sword is the development of Toledo steel. Named for the region around Toledo, Spain where it was first crafted, Toledo steel possesses both a durability and beauty which caused quite a stir across the

Figure 2-9: *Espada ropera*

European continent. However, controversy arises when we try to pinpoint a timetable for the development of the technique. Unquestioned is the fact that extremely well-crafted swords were being produced on the Iberian Peninsula as early as 1000 B.C.E. But the true advent of ‘Toledo steel’ did not come about for another 1500 – 2000 years. Some scholars argue that, following the invasion of the Moors with their damascened steel blades, the crafting of steel changed in Spain, closely mimicking the style of their Moorish counterparts (Lau, 2005). However, in his book entitled “*Understanding Materials Science: History, Properties, Applications*”, Rolf Hummel claims that during the 7th century C.E., the Spaniards in Toledo came up with their own version of *wootz* steel (Hummel, 2004). This would seem to predate the invasion of the Moors, which did not occur for another 100 years. It is this author’s belief that although the Moors did not invade for nearly a century, some of their weaponry and science was making its way to the Iberian Peninsula either by migration across the Straits of Gibraltar or through trade with the Greeks and Italians.

Despite not knowing the exact timeframe of development, Toledo steel quickly became known across the continent of Europe as the preeminent material for sword crafting during the Middle Ages. During the 16<sup>th</sup> and 17<sup>th</sup> centuries, as the Spanish trade empire expanded, demand for weapons of Toledo steel increased. Although unsubstantiated at this time, one chronicler claimed that:

Even Japanese samurai were aware of the existence of Toledo steel as it had been introduced by the Spanish merchants that followed the steps of the Spanish and Portuguese Jesuits. As Japan lived in a state of continuous civil war, it is not surprising that some of their Daimyos even came to Toledo to have their katana and wakizashi forged there. They knew how important was a perfect design and finish for the effectiveness of a sword.<sup>7</sup>



We have discussed the various types of swords crafted on the Iberian Peninsula, as well as the materials used. Now we will turn our attention to the aesthetic value of these weapons. As can be seen in figure 2-3 (Celtiberian sword), decoration of weapons began as early as 900 B.C.E. Geometric shapes seem to dominate early adornment, most likely due to the rudimentary tools available to the crafters of the time. As refinements in metallurgy and crafting techniques advanced, so did the complexity of the designs. One of the high points of Spanish craftsmanship was reached around 1000 C.E. This is evidenced by examining the fabled Tizona, the sword wielded by El Cid in the Battle of Graus in 1063. Now one of Spain's most cherished relics, Tizona is an outstanding example of the Spanish longsword. Although crafted 400 years before the advent of the *espada ropera*, Tizona already begins to show signs of the eventual trimmed down lines that define the later sword style. The hilt is finely crafted with beautifully complex, yet functional design elements. In the hands of the master swordsman like El Cid, who was respected by both Christians and Moors,<sup>8</sup> this sword certainly helped spread the reputation of Toledo steel and Spanish sword aesthetics across Europe and North Africa.



Figure 2-10: Tizona

An example of a sword that possibly has its roots in Spain is the famous sword of Boabdil. Boabdil, known as the last Moorish king of Granada, was proclaimed king in 1482, after his father was driven from the land. Soon after, he sought to gain power and prestige by



Figure 2-11: Sword of Boabdil

invading Castile. He was taken prisoner in 1483 and only gained his freedom by consenting to hold Granada as a tributary kingdom under Ferdinand and Isabella, king and queen of Castile and Aragon. The next few years were consumed in struggles with his father and his uncle Abdullah ez Zagal. In 1489 Boabdil was summoned by Ferdinand and Isabella to surrender the city of Granada, and on his refusal it was besieged by the

Castilians. Eventually, on 2 January 1492, Granada was surrendered. Though the sword is distinctly Moorish in decoration, the style of the sword harkens back to the continental longsword, which Boabdil and his father would have certainly been exposed to in Granada.

As fighting styles changed and the longsword gave way to the *espada ropera*, more complex hilt designs began to emerge. Not only viewed as a weapon, but also as an adornment for noble attire, the hilts of the *espada ropera* were often gilt and sometimes inset with precious stones. This is perhaps the beginnings of the European swordsmith becoming more of an artisan than a craftsman.

## End Notes

<sup>1</sup> 'Man' in this case is meant to be inclusive of Neanderthal, Cro-Magnon and Human (Homo sapiens).

<sup>2</sup> For the Iberian Peninsula (and much of Northern Europe as well), the dates for the Mesolithic period are 8000 – 6000 B.C.E (ending with the advent of farming).

<sup>3</sup> *Shamshir* is the Persian word for sword. *Scimitar* is the modern name of the sword commonly used by the Persians and Moors.

<sup>4</sup> The swords not only were capable of being sharpened to an incredible degree, they also seemed, as if by magic, to resharpen themselves through use. The presence of the nanotubes helps to explain this phenomenon. As the weapons were used, the microscope nanotubes would break off, causing a new, sharp edge to be present. This would certainly have seemed mystical in nature during the middle ages.

<sup>5</sup> Notably absent from this discussion of Spanish peoples are the Basques. The origin of the Basques, possibly the oldest surviving ethnic group in Europe, has not yet been determined, but they antedate the ancient Iberian tribes of Spain. Genetically and culturally, the Basque population has been relatively isolated and distinct, perhaps since Paleolithic times. Many Basque communities preserve their ancient language, which is unrelated to any other tongue. Although they produce some marvelous metalwork, they have not made any significant contribution to the development of sword or sword aesthetic, thus they are not present in this paper due to lack of relevance.

<sup>6</sup> The ‘bastard sword’ was so called because it was neither a two handed sword nor a single-handed sword. Light enough to be wielded with one hand, the hilt was long enough to put two hands on for more power.

<sup>7</sup> No author was listed for this claim, although it was found on several web pages, originating in both Spain and England.

<sup>8</sup> Rodrigo Díaz de Vivar (c.1044 – Valencia, 10 July 1099), known as El Cid Campeador, was a Castilian nobleman, then military and political leader who conquered and governed the city of Valencia. Rodrigo Díaz was educated in the royal court of Castile and became the *alférez*, or chief general, of Alfonso VI, fighting against the Moors in the early *Reconquista*. Later exiled by the king, El Cid left service in Castile and worked as a mercenary for other rulers, both Muslim and Christian. "El Cid" is derived from the word *al-sīd* in the Andalusī Arabic dialect (from the Arabic *sayyid*, "sir" or "lord," a title of respect), while the title El Campeador (the champion) was granted by his Christian admirers and derives from the Latin *campi doctor*. These titles reflected the great esteem El Cid had among both Moors and Christians.

## Chapter Three

### History of Japanese Sword Crafting and Aesthetics

“Even if I go not, I can send down my sword, with which I subdued the land, upon which the country will of its own accord become peaceful.”

~ Take-mika-tsuchi no Kami, *Nihongi*

According to the *Nihon Shoki*,<sup>1</sup> often translated as *The Chronicles of Japan*, the divine mandate to rule over the land of Japan was granted to the imperial family in the form of three sacred gifts, the divine regalia. These consisted of a blessed jewel, a sacred mirror and a sword taken from the body of the great serpent by the god Susano-o, brother to Amaterasu. The sword, originally known as ‘*Ame no Murakomo*’ (Cloud Cluster), was gifted to Prince Yamato Takeru by the god Amaterasu. The sword features prominently in the many legends surrounding Prince Yamato, who, while exhibiting a total fearlessness when facing enemies, was completely lacking in any form of compassion. In one adventure, Yamato was being pursued through a field of long grasses. He drew his sword and swiftly cut a path to safety and in the process renamed the blade ‘*Kusanagi no tsurugi*’ (Grass-Cutting Sword).<sup>2</sup> When Prince Yamato died, poisoned by the same serpent from whose tail the sword had originally been taken, his spirit was transformed into a white bird. The sword was placed in the Atsuta Shrine, where it became one of the three sacred regalia of the imperial family.<sup>3</sup>



Figure 3-1: *Yamato Takeru*  
by Kikuchi Yosai (1788-1878)

Like many legendary figures in Western literature, it is widely believed that although there may have in fact been a Prince Yamato, the adventures attributed to him are most likely a



Figure 3-2: Kusanagi (or replica) housed at Atsuta Shrine

composite story, derived with

suitable exaggerations from the

experiences of warriors who

fought the barbarian clans in the

1<sup>st</sup> and 2<sup>nd</sup> centuries C.E. (Cook, 1999). Of the account presented in the *Nihon Shoki*, it should be noted that the book was completed circa 720 C.E., ten years after the end of the Yamato period (250 – 710 C.E.). It is therefore reasonable to assume that a correlation exists between the significance of Prince Yamato in the story and the date of completion of the *Nihon Shoki*.

While the story of Yamato, and indeed most of the *Nihon Shoki*, has little bearing upon the true history of the Japanese sword, it serves to illustrate the extent of the sword's integration into Japanese mythology. Of all the weapons in the samurai's arsenal, the sword is the most important and the one most closely identified with the warrior class. The sword is more than simply an implement for combat; it has a symbolic value in terms of the samurai's honor. As the famous shogun Tokugawa Ieyasu (1543 – 1616 C.E.) stated, "The sword is the soul of the samurai." Casual treatment of a blade was taken as an insult to the owner and could have lethal consequences. Accordingly, a highly detailed etiquette evolved around the correct way to wear, touch and use the traditional sword of the Japanese warrior. This tradition, handed down through centuries, is still followed by practitioners of traditional martial arts.

Yet much of the lore surrounding Japanese swords is of comparatively late origin. For most of samurai history, the primary weapons of choice for the battlefield were the bow and eventually the spear. The first swords, wielded by the Yamato soldiers in their battles against the



Figure 3-3: Folding screen (date unknown) depicting early samurai warriors

*emishi*, were straight-bladed weapons. These swords were carried in scabbards covered in sheet copper and decorated with punched designs. Some had a hilt ending in a bulbous, slanting pommel of copper, the ‘mallet-headed sword’, while others, called the ‘Korean sword’ had ring-shaped pommels, occasionally enclosing silhouettes of

animal designs. The length of these weapons varied, but the average size was approximately thirty-five inches.

The term *emishi* was used by the Japanese to designate inhabitants of northeastern Japan, which is known today as the Tohoku region. These people are known in contemporary sources as *michi no oku* and opposed and resisted the rule of the Japanese emperors during the late Nara and early Heian periods (7<sup>th</sup> – 10<sup>th</sup> centuries C.E.). They were likely an indigenous population known as the Ainu, predating the modern Japanese. It had been speculated that the Ainu may be descendants of a prehistoric race that also produced the indigenous Australian peoples (Olsen, 2003). Other historians theorize that they are derived from an ancient stock that may have occupied parts of Central and East Asia. Genetic studies are currently in process to determine if Native Americans may also be related to them. The prevailing mythology in Japan portrays the Ainu as a race of ‘noble savages,’ a proud but reclusive culture of hunter-gatherers. The Ainu people embrace a legend which speaks of their legitimate place in Japanese history, “The Ainu lived in this place a hundred thousand years before the Children of the Sun came.”

The *emishi* were represented by different tribes, some of whom became allies of the Japanese (*fushu*, *ifu*) while others remained hostile (*iteki*). The *emishi* in northeastern Honshū

developed a unique style of warfare where horse archery and hit and run tactics proved effective against the slower, contemporary Japanese imperial army that relied mostly on heavy infantry. Skirmishes with the *emishi* date back to the 1<sup>st</sup> and 2<sup>nd</sup> century C.E. The first major attempts to subjugate the *emishi* by the emperors of Japan, particularly Emperor Kanmu in the late 8<sup>th</sup> century, were largely unsuccessful. The imperial armies, modeled after the mainland Chinese, were no match for the guerrilla tactics of the *emishi*. Ironically, it was the development of horse archery and the adoption of *emishi* tactics by the early Japanese warriors that led to the *emishi* defeat.

The history of the *emishi* battles is integral to the discussion of the development of the samurai sword, for it is with the *emishi* that the curved sword is first associated in Japan. It was soon after the first skirmishes with the *emishi* that the advantages of a weapon that could be used for slashing as well as thrusting became apparent. The result was the development of the *tachi* by Japanese swordsmiths, and it is here that the history of the samurai sword begins in earnest.

In general, samurai swords are made of steel, single bladed, curved, and tempered. The history of such swords is commonly divided into four periods. The Ancient Sword (Chokuto or Ken) period is considered any time before 900 C.E. The Old Sword (Koto) period dates from 900 – 1530 C.E., while the New Sword (Shinto) period is from 1530 – 1867 C.E. The Modern Sword (Shin-Shinto) period encompasses anything crafted after 1867 C.E.

Archaeological investigation suggests that the development of the Yayoi culture (850 B.C.E. – 250 C.E.) was stimulated by Korean invaders who contributed advanced agricultural techniques. Most importantly, among these was wet-rice cultivation, which requires irrigation and therefore considerable social organization. The art of bronze casting was first introduced by the Koreans, who brought with them many bronze objects which were used as examples by the

Japanese. The 6th century marked the beginning of close cultural ties between Japan and the continent – China and the three kingdoms of Korea – and witnessed the first of several all-out efforts of the Japanese to assimilate foreign ideas and institutions. One result of this intense interest in continental culture was the introduction of Buddhism from China and Korea. Along with the imported religion came other aspects of Chinese culture, including writing, the compilation of histories, and the concept of statecraft under a single ruler. All of these had a profound effect on the island country.

The introduction of steel was of extreme importance to the soon-to-rise art of the crafting of the samurai sword. Though not the first crafters of steel, the Chinese were the first to produce steel from cast iron,<sup>4</sup> a process well under way by the 2nd century B.C.E. Through the process of decarburization, carbon was removed from the iron, making it far less brittle. This removal of carbon was accomplished by blowing oxygen on the cast iron (oxygenation). Making steel by this means was sometimes called ‘the hundred refinings method’, because the process was repeated time and again, with the steel becoming stronger each time. According to Robert Temple, swords made by this method were highly prized. The back of the sword, not having an edge, would often be made of more elastic wrought iron, and the harder steel would be welded on it to bear the cutting edge. Temple also suggests that the Chinese, about the 5th century C.E., developed the ‘co-fusion’ process, in which cast and wrought iron were melted together to yield steel, the ‘something in between’ (Temple, 1986). Joseph Needham states in Volume 4 of his *Science and Civilization in China*, that along with their original methods of forging steel, the Chinese had also adopted the production methods of creating *wootz* steel, an idea imported from India to China by the 5th century C.E (Needham, 2004). Although further investigation would be necessary, it is this author’s belief that, while the Chinese might have attempted to reproduce



*wootz* steel, they were most likely unsuccessful. *Wootz* weapons were highly prized. The secret of their forging was very closely guarded and disappeared during the first millennium C.E. No weapons dating after 1000 C.E. have been discovered with an identical chemical structure as that found in true *wootz* steel. With the benefit of modern science, we now understand that this phenomenon is due to the chemical makeup of the ore mined in India that was used in the forging of *wootz*. It is likely that the process of ‘co-fusion’ may have been discovered by artisans seeking to recreate the process used in the production of *wootz*.<sup>5</sup>

The story of Prince Yamato and his famous sword, Kusanagi, first appears around 700 C.E. Evidence of the cultural influences of China and Korea can easily be seen by comparing Kusanagi with a Chinese copper sword and a bronze dagger from Korea (see figure 3-4).

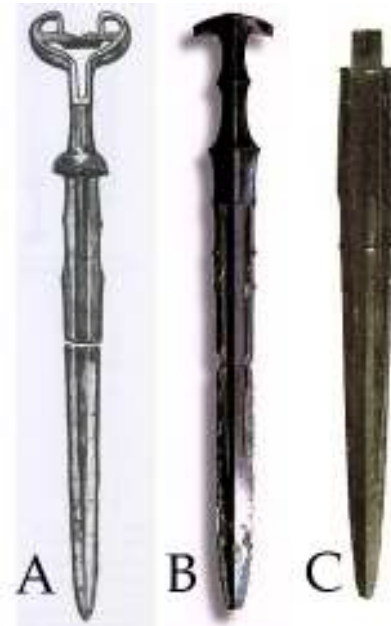


Figure 3-4:  
A. Chinese copper sword (557-581 C.E.)  
B. Kusanagi  
C. Korean bronze dagger (500-300 B.C.E)

In the text of John Yumoto’s book *The Samurai Sword: A Handbook* is found the legend of the first ‘samurai’ sword. According to the folklore of the Yamato province, the swordsmith Amakuni Yasutsuna made the first samurai sword in Yamato about 700 C.E.<sup>6</sup> Amakuni was the head of a group of swordsmiths who were all employed in making swords for the emperor and his warriors. One day Amakuni and his son, Amakura, were standing in the doorway of their shop, watching the soldiers as they returned from battle. The emperor then passed by but did not give Amakuni any sign of recognition as he had done on previous occasions. Amakuni had always looked upon these gestures as a sign of appreciation for his efforts. Then he noticed that

nearly half of the returning soldiers were carrying broken swords. Amakuni and his son gathered the sword remnants and examined them. It appeared that the swords had been improperly forged and broke when the soldiers had struck hard objects with them. As he remembered the emperor's subtle rebuff, his eyes filled with tears and he vowed, 'If they are going to use our swords for such slashing, I shall make one which will not break.' Amakuni and his son shut themselves away in the forge and prayed for seven days and seven nights to the Shinto gods. Then Amakuni selected the best sand ore he could obtain and refined it. Steadily, relentlessly, the two worked at their seemingly impossible task. Thirty days later, gaunt, weary, but jubilant, the swordsmiths emerged with a single-bladed, curved sword, which they ground and polished.

In the months that followed, Amakuni and his son continued with their work, turning out many improved types of swords. In the following spring there was another war. Again the



Figure 3-5: Kogarasa-maru sword circa 701 A.D.  
(attributed to Amakuni Yasutsuna)

soldiers returned, and as he watched them parade by he counted; one, two, three – twenty-five, twenty-six, twenty-seven – thirty, thirty-one. All the swords were intact and perfect. This time, as the emperor passed him, he smiled and said,

'You are an excellent sword-maker. None of the swords you made failed in battle.' Amakuni rejoiced and once more felt that all was well and his life was full.<sup>7</sup>

Although it is not known for certain when or where the first samurai swords<sup>8</sup> were crafted, it has been established that by the Thirty Years War (774 – 802 C.E.), there were many *emishi* attached to Japanese fighting units, and were armed with samurai swords. These swords, discovered in the Northern provinces where the conflict with the *emishi* was heaviest and dating

from circa 900 C.E., are the earliest extant examples of the weapons.

As mentioned, the result of the Japanese swordsmiths adopting the



*emishi*-styled blades was the

Figure 3-6: *Tachi* sword. Kamakura Period (1322).  
Tokyo National Museum

development of the *tachi*, the classic samurai sword, worn slung from the belt with its cutting edge downward. Two hands would be needed to draw it, so the samurai would present his bow to an attendant before going into action with a sword.

For three centuries, the swordsmiths continued to refine and improve upon their sword-making techniques. Yet for all the advantage that this new sword-type provided, the Japanese still relied primarily on the bow and the spear. It was not until after the Mongol invasions (1274 and 1281 C.E.) that a major change occurred. The invasions<sup>9</sup> introduced formation combat to the Japanese and the practice quickly began to spread across Japan. The stress on archery diminished and the sword began to assume a more prominent role in the samurai's fighting style. Over the next two centuries, the samurai fighting style evolved from that of a mounted archer, who used his sword as an auxiliary weapon, to that of a swordsman who generally fought on foot but could use his archery skills when necessary.

The arts associated with military prowess reached new technological and aesthetic heights during the Kamakura shogunate (1185-1333). Of great importance to historians are the many extant illustrated hand-scrolls which were created to record major military events during this period. The establishment of schools dedicated to particular martial techniques occurs for the first time during the Koto period. The first of these schools, called *ryu*, that can be reliably dated is the Tenshin Shoden Shito Ryu, founded by Iezasu Choisai Ienao (1387 – 1488). Among



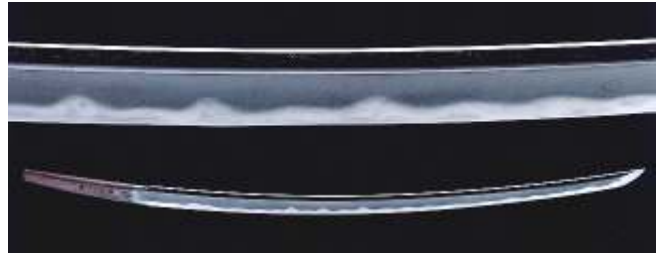
Figure 3-7: *The Swordsmith of Mt Inari* by Ogata Gekko (1859-1920)

samurai, the swords became quasi-sacred, and the swordsmiths, when practicing their art, were thought to be possessed by a divine Shinto spirit. The making of a blade was as much ritual as craft. Swordsmiths, like Shinto priests, wore white for their work and underwent preliminary rituals of purifications and cleansing. The Japanese believed that swordsmiths imbued their finished work with their own personalities. For example, a smith by the name of Muramasa (c. 1500 C.E.) had a reputation for making blades that brought death and disaster to their owners. As the story goes, when one of Muramasa's swords was placed in a stream, the leaves floating on top

of the water were cut cleanly in two. But when a blade from the respected smith Masamune (c. 1300 C.E.) was placed in the stream, the leaves, by themselves, parted in deference to it. "The Muramasa is terrible," it was said, but "the Masamune is humane." Swords were often given names by the smiths or by their owners.

To a large extent, the location of Japanese smiths was governed by several factors: proximity to the center of administration, where the demand for a sword was usually great; easy access to ore and charcoal for forging; a plentiful supply of good water; and, a mild climate. Schools of smiths from the five provinces of Bizen, Yamashiro, Yamato, Soshu and Mino produced approximately eighty percent of all swords made during the Koto period. Collectively, these smiths were known as the Five Schools.

Refining techniques were at an all-time high and the forging processes developed during this period are still used today. Much like pattern-welding in the West, Japanese swords consisted of several



pieces of metal, folded back upon themselves numerous times, sometimes longitudinally and sometimes crosswise, perhaps even alternately. Arguably the most famous swordsmith in Japanese history, Masamune, is known to have used four bars of steel in the construction of one of his swords, each welded and doubled five times to create a piece with 2,097,152 layers.

Figure 3-8: Sword blade attributed to Masamune

Once the laminated steel for the core was combined with the tool steel for the exterior and shaped, the selective hardening would take place. The whole blade was coated in a stiff paste of clay and water. Then the insulating clay was removed from the cutting edge. The remaining clay was dried and the whole blade brought to the uniform hardening temperature. The sword was then quickly immersed in a trough of water ‘having the temperature acquired during the first lunar month.’ If the clay was well distributed and did not crack off, hardening was accomplished only within the desired zone, and in a pattern on the metal surface determined by the manner in which clay was removed. Some smiths would choose a particular design of wavy lines as their signature style. The hardened blade was carefully examined, and if no cracks or faults were found, the long process of polishing would begin. The first stage was the removal of scale and metal. At this point the curvature of the blade could be adjusted. Polishing continued with the use of a succession of finer grained stones. The final polishing was then completed, with the strictest secrecy maintained throughout the process. This would produce the characteristic wavy line known as the *yakiba*, where the hardened and unhardened steel areas

met. The hardened cutting edge was then sharpened to produce an almost unparalleled cutting surface. Lastly, the whole blade was mounted in a handle.

Despite the sword-makers reputation, the art of a master craftsman counted for little if his blade could not be relied on for strength and cutting power. To ensure a sword's reliability, a



Figure 3-9: Sword testing diagram of the Yamada family who served as the official testers for the Tokugawa shogunate (1603—1868). It is labeled in terms of the difficulty in achieving the cut in one stroke.

professional sword tester was sometimes employed to test the cutting power of a new sword on corpses taken from the execution grounds, and sometimes on the living bodies of condemned criminals. Twenty different cuts were used, beginning with severing the hand by cutting through the wrist, and then progressing systematically through the thicker limbs of the body. The results were usually recorded on the *nakago* (sword tang). It is not uncommon to find inscriptions on old swords giving details such as ‘two men cut’ or ‘eight arms severed’. An extremely well crafted sword, wielded by an expert, was capable of easily slicing through flesh and bone. Several 17<sup>th</sup> century blades

bear the inscription ‘*mitsudo setsudan*’ (three bodies with one cut). In the martial art of *iai-jutsu*, the art of drawing the sword, one of the techniques taught is cutting the body in two by slicing through the torso from the right hip to the left shoulder from the draw. One story found in many variations, tells of men being severed from shoulder to crotch so quickly and cleanly, that they walked on for several paces before falling in two.

During the Koto period, the *tachi*, the classic samurai sword, is refined and two new types of blades are developed. The first of these new blades was the *tanto* which was substantially shorter than the *tachi*. The *tanto* was a weapon for close quarters fighting and was often worn in the belt along side of the sword when armor was worn. At the time of the Gempei Wars (1180 – 1185 C.E.), individual combat would usually begin with



Figure 3-10: *Tanto* blade, late Kamakura period, by Rai Kunitoshi (active ca. 1290–1320)

an exchange of arrows, followed by the opponents squaring off with their swords. But more often than not, when two rivals came to grips, it would be the *tanto* that decided the outcome of the battle rather than the sword.



Figure 3-11: *Nodachi* wielded by unknown swordsman

The *nodachi*, or field sword, first makes its appearance at the beginning of the 14<sup>th</sup> century. These swords featured extra long blades. Some scholars argue that caution should be heeded before concluding that these swords were used for fighting. Research suggests that many of the longer swords were produced by swordsmiths to serve as offerings to shrines and temples. However, there are enough references to confirm that the *nodachi* could have been used effectively by a trained and skilled warrior. It appears that the *nodachi* would have been used almost exclusively by warriors on foot and would be particularly useful for disrupting a cavalry charge by breaking the legs of the combatants' horses. The long blade of the

*nodachi* was often not sharpened its entire length, leaving the area next to the handle blunt and rounded in the style called *hamaguri ha* (clam-shell blade). In this way, the sword would then be used as an elongated battle-ax.

From 1477 – 1576 C.E., Japan was embroiled in civil war. During this period, known as *Sengoku-jidai* (Age of the Country at War), many smaller clans realized that in order to survive, they would need to ally themselves with larger clans, at least until such time as they could usurp the power from their erstwhile protectors. Ambitious leaders of samurai called more and more men into battle and even the despised peasants were given spears and swords to fight along side the samurai elite. Called *ashigaru*, or ‘light feet’, these peasants often went into battle without armor. Soon even, the most unskilled village blacksmith became a sword-maker, mass-producing spear heads for the samurai and crude swords for the *ashigaru*. The poorly-tempered, brittle blades often shattered against armor and such was the mistrust placed in these inferior swords that a samurai forced by poverty to depend upon them would take five or six with him into battle, ready to be discarded at will. The glory of the Ashikaga period (1336 – 1573 C.E.), and its most potent symbol, the peerless samurai sword, were both passing away.

It is important to realize that the Japanese were not isolated in the belief that sword making was a quasi-sacred art. Several other populations from regions close to Japan share similar beliefs. The possibility that some or all of these peoples contributed to the development of the sword culture in Japan is very likely.

The most notable of these cultures is the Korean, responsible for a large influx of new ideas into Japan. Korea’s first metal swords are described in writings from the Paekche dynasty (18 B.C.E – 668 C.E.), a ruling power in ancient Korea that had substantial contact with Japan. The sword, which the Koreans call a *gum*,<sup>10</sup> was so special to the nation’s martial arts that during



this time, great swordsmen were especially honored and highly respected by the populace. Many of the country's generals and leaders were skilled practitioners. In Japan and China, sword-crafting eventually evolved into set patterns according to the style or intended use of the blade, but each Korean blade was independently crafted for the swordsman who would own it. Many Korean martial artists made their own swords, thus creating blades of all shapes and sizes. This practice, however, reduced the number of skilled craftsmen who devoted themselves solely to the creation of blades. Thus Korean blades, with some notable exceptions, were seldom produced at the same level of excellence as their Japanese counterparts. Unfortunately, the Japanese occupation of Korea (1910 – 1945) witnessed a drastic decline in the number of craftsmen practicing the science and art of sword making. Many of the treasured traditions that had been passed down for generations were lost along with numerous priceless swords.

While India did not have direct early contact with Japan, it must be assumed that some Indian influence could have reached Japan through trade across Southeastasia, Korea and China. It is therefore possible that the art of Thang-ta, indigenous to the area of Manipur, India, may have reached the Japanese people. Swords held an important place in Manipur culture, both symbolically and practically. The sword itself was regarded as the deity Pakhangba. The naming of swords was an ancient practice and the names of swords used by their kings or belonging to various deities have been recorded for centuries. Although there are many shapes and varieties of swords common to this region, each of the seven clans in Manipur had a sword with a distinct shape and name. The sword's curvature was often inspired by the shape of a leaf of one of the indigenous plants of Manipur and the manufacture of the sword was ritualized to a great extent. For example, the swordsmith was expected to remain chaste for a predetermined duration before starting to craft the weapon. To achieve the very best results, it was believed that

work on the sword should start and end on auspicious days. Unfortunately from an historic standpoint, it was common practice that, at the end of the sword's career – usually coinciding with the death of the owner – the sword was buried separately in its own mound.

Indonesia shares an intermittent history with Japan. Though originally inhabited by *Homo erectus*<sup>11</sup> between 2,000,000 and 500,000 years ago, the modern Indonesian peoples, thought to be of Austronegian origin, migrated down from Southeast Asia to this immense archipelago around 4000 B.C.E. They are also thought to be the ancestors of the Ainu culture of Northern Japan. Trade routes were established with China and India around 700 C.E. and it is at this time that metals were introduced to the islands. Already skilled craftsmen, the weaponsmiths of Indonesia quickly adapted their craft to include the use of metal. The most famous weapon to be produced in Indonesia is the *kris*, or *keris*. The exact dates of the origin of this weapon are unknown, but several popular theories exist. Some believe the kris, as it is recognized today, came into existence around 1361 C.E., while others believe that its origin was substantially earlier. *Kris* history is traced through the study of carvings and bas relief panels found in Southeast Asia. One of the more famous renderings of a *kris* appears on the Borobudur temple, built around 800 C.E. The blade, which is invariably wavy, is also the center of much debate. It was thought that it might be an abstraction of the Hindu *naga*,<sup>12</sup> or an imitation of the traditional Indian knife, or perhaps even a metal-age innovation on the ancient Malay's basic weapon, the sting-ray bone dagger. What is not debated is the skill of the



Figure 3-12: Balinese *kris* with Damascened steel blade.

craftsmen who created these weapons or the reverence with which they were treated. Not simply a revered craftsman, the Malay ironsmith of old was also a holy man of sorts. Similar to the Japanese tradition, his smithy was a consecrated place where he solemnly celebrated the ancient rites commemorating the gods' gifting of weapons to man before actually working on a *kris*. The *kris* was comprised of at least two, and up to twenty kinds of metal. The use of Damascene steel for the blade became increasingly popular with the spread of Islam to Indonesia during the 11<sup>th</sup> century C.E. During the Majapahit period (13<sup>th</sup> and 14<sup>th</sup> century C.E.), when Java's cultural influence over most of Southeast Asia was at its highest, the *kris*-maker achieved the status of artist, court favorite and priest simultaneously. Even today, in some parts of Malay, the *kris* is enshrined in home altars. Many Balinese village homes have a 'living' *kris* wrapped in expensive pieces of cloth, or held by a deity, before which ritual offerings are made. Such a *kris* is treated as a household god, for the blade is believed to house the soul of its first or most valiant ancestral user. In 1783, the British Orientalist William Marsden recorded that 'the value of a *kris* is enhanced in proportion to the number of people it has slain.'

By 1565, the Spaniards had colonized the Philippines while Portugal had added settlements in China and Japan to its dominions in India. It is during this period that the gun is introduced to Japan, an introduction that would drastically change the balance of power.

## End Notes

<sup>1</sup> Also referred to commonly as *Nihongi*, it is the second oldest book of classical Japanese history. It is more elaborate than *Kojiki*, the oldest book, and has proven invaluable to historians as it includes the most complete extant historical record of ancient Japan.

<sup>2</sup> Another translation calls it Herb-Quelling Sword.

<sup>3</sup> There are numerous variations of the tales of Prince Yamato, with differing accounts of his death, his relationship to the gods and his adventures through the provinces. However, the sword features prominently in all of the stories. Several stories exist regarding the sword that is currently housed in Atsuta Shrine. One story claims that the sword was lost to the depths of the

ocean. Others claim that the sword lost was eventually recovered, while yet another states that the sword that was lost was one of the replica swords that the Emperor had had commissioned for travel.

<sup>4</sup> Steel is thought by some scholars to have first been crafted in East Africa, dating as early as 1400 B.C.E., but documentation of this has not proven sufficient for use in this paper.

<sup>5</sup> Needham never actually states that *wootz* steel is produced in China, only that ‘the production methods of creating *wootz* steel’ were imported.

<sup>6</sup> Although there is no data on which to base this tale, it does have some logical basis, as some of the earliest samurai swords found today can be traced back to the swordsmith Yasutsuna, of Hoki, and date from about 900 C.E.

<sup>7</sup> This story is paraphrased from the version found on pages 24-26 of Yumoto’s book.

<sup>8</sup> Amakuni’s swords, while undoubtedly the closest predecessors of the ‘samurai sword’, had both edges sharpened, thus distinguishing them from what would later become the standardized single-edged weapon that has been produced almost exclusively since c. 900 C.E.

<sup>9</sup> Though both invasion attempts failed to reach the shores of Japan in full scale, small companies of Mongols did manage to make landfall. It was during the small skirmishes with these landing parties that the Japanese were first introduced to formation combat.

<sup>10</sup> Also romanized *geom* or *kum*.

<sup>11</sup> Now popularly known as Java Man.

<sup>12</sup> *Naga* is the Sanskrit and Pāli word for a deity or class of entity or being, taking the form of a very large snake, found in both Hinduism and Buddhism. In India, *nagas* are considered nature spirits and the protectors of springs, wells and rivers. They bring rain, and thus fertility, but are also thought to bring disasters such as floods and drought. According to tradition, *nagas* are only malevolent to humans when they have been mistreated. They are susceptible to mankind’s disrespectful actions in relation to the environment. They are also associated with waters — rivers, lakes, seas, and wells — and are generally regarded as guardians of treasure.

## **Chapter Four**

### **Discussion of the Development in Both Countries After the Advent of the Firearm**

“Never bring a knife to a gunfight.”

~ First rule of modern warfare

In *The Book of the Sword*, Richard Burton states:

If the history of arms be the history of our kind, and if the missile be the favorite weapon of the Savage and the Barbarian, the metal sword eminently characterizes the semi-civilized, and the use of gunpowder civilized man. (Burton, 1987)

The gun is not a western invention. Like many other technological advances, the gun owes its success to the ingenuity of the many cultures that have adopted and improved upon it over the centuries. However, the origin of gunpowder, the key to the invention of the firearm, has been convincingly traced to China by the research of Joseph Needham and his colleagues. Through close study of early manuscripts, a sequence of events that chronicles the gun's Eastern evolution has been put together. It started with taoist alchemists looking for elixirs of life and immortality. While combining and burning random ingredients, it was discovered that the combination of sulfur, charcoal and saltpeter (potassium nitrate) burned and sparked intensely. As more nitrates were added, the explosive nature of the mixture grew.

By approximately 1000 C.E., this volatile mixture was being applied to warlike devices. Trebuchets were being used to lob simple bombs. Early on, the projection of these bombs was done by purely mechanical means, but experimentation was underway to use gunpowder as a propellant. These experiments eventually led to the development of the cannon.

The belief in action at a distance is a key feature of Chinese science and technology. The use of the bow, and subsequently the crossbow, had driven the chariot from the battlefield, and

the notion of individual combat as heroic and grand was not truly embraced until sometime after 1200 C.E. Following this belief, guns made sense from a cultural standpoint. China also happens to be blessed with an abundant supply of bamboo, a natural resource that prefigured the form that guns would eventually take. The Chinese cut bamboo, cleared it of internal matter, and filled it with gunpowder, thus creating a sort of flamethrower or firelance. This weapon was soon employed by the Song Dynasty (960 – 1279 C.E.) against invading horse archers.

As the use of firelance increased, bamboo's limitations due to strength and flammability became a technological hurdle. This was overcome by replacing bamboo with tubes of cast iron and bronze. This greatly improved the durability of the weapon and allowed for the use of a nitrate-enriched powder, which generated explosive forces and dramatically increased the velocity of the



Figure 4-1: Chinese firelance and grenade (upper right), 10<sup>th</sup> century C.E.

burning gases emitted from the muzzle. Bits of metal and ceramic shards were soon being placed in front of the charge, these being propelled outward from the newly improved barrels upon ignition of the gunpowder. By 1128, vase-shaped fire tubes were being used to fire arrows. However, it was soon discovered that this method allowed a great amount of force to escape around the arrow, thus wasting a large portion of the expended energy. A return to the tube-like barrels was thus inevitable.



Figure 4-2: Chinese hand cannon

Despite these technological advances, the Chinese marginalized the use of the firearm, choosing instead to concentrate the use of gunpowder into other inventions such as rockets, cannon and fireworks. This was not the case with the invading neighbors from the Steppe.

The Mongols were likely responsible for bringing gunpowder and firearms to Europe. Chinese weapons and siege equipment were used by the Mongols during their invasions into Eastern Europe between 1220 and 1240. Although the Mongols turned back in 1242 after the death of Ogedei Khan, the scare raised questions throughout Europe about the identity and motives of the Mongols.



Figure 4-3: *Battle of Legnica* (April 1241)  
by Matthaus Merian (1593 – 1650)

William of Rubruck, a Franciscan friar, traveled to the court of Mongke Khan between 1253 and 1255. While the account of his journey did not circulate widely in Europe, a fellow Franciscan by the name of Roger Bacon took a keen interest in his experience. Perhaps by coincidence, the earliest European reference to gunpowder is found in Bacon's *Epistola de secretis operibus artiis et naturae* from 1267. Soon afterward, the first formulas suitable for firearms appeared, these found in the *Liber ignium ad comburendos hostes* attributed to Marcus Graecus, thought to date from the last quarter of the 13<sup>th</sup> century (Partington, 1998).

There is no record in Europe of the centuries of experimentation with gunpowder recipes or with gunpowder weapons that occurred in China. The Chinese produced a variety of flamethrowers, rockets, bombs and mines before coming to firearms. By contrast, the

Europeans, having benefited from these centuries of foreign research, were able to immediately begin construction of and experimentation with guns.

Firearms came to Europe with a sinister, even satanic aura. Surgical writer John of Mirfield terms the gun a ‘diabolical instrument’ (Hartley and Aldridge, 1936), while Francesco Guicciardini referred to firearms as ‘diabolical rather than human instruments’ (Guicciardini, 1984). Erasmus is attributed with calling them ‘engines of hell’ and as late as 1667, John Milton made firearms the surprise weapons of the infernal forces of Satan in *Paradise Lost*. When Ariosto’s hero in *Orlando Furioso* threw the first gun into the ocean, he exclaimed:

O cursed, abominable engine, which malign Beelzebub put  
together in the Tartarean depth, who intended to ruin the world  
through you, I reassign you to the hell from which you  
came.(Ariosto, 2006)

According to Kenneth Chase, these remarks may contain a small truth. The Mongols were sometimes referred to as the Tatars, after the name of a related and originally more prominent group of steppe nomads. The latter name was corrupted into “Tartar” by Europeans, apparently due to its similarity to the Latin word for hell, *Tartarus*. Thus, as it was likely the Mongols who introduced firearms to Europe, it is easy to see how confusion might arise. The association of the smell of sulfur with hell could also have contributed to this concept (Chase, 2003).

Firearms spread quickly across Europe in spite of the satanic overtones. The main hurdle was the expense of gunpowder. Overall, Europe lacked the natural saltpeter deposits that both China and India had in abundance. However, between the 1380s and the 1420s, saltpeter ‘plantations’ were developed across Europe, effectively lowering the price of gunpowder by one-half to two-thirds. This increase in the supply of gunpowder, along with the decreased cost of production, allowed the use of larger weapons which fired heavier projectiles and for the further





Figure 4-4: Ottoman *mameluke* using a handgun during a battle in the Habsburg wars

research and development of hand-held firearms. The first significant victory due to the use of hand firearms was perhaps at the battle of Bicocca in 1522, in the first of the Habsburg-Valois wars that were to tear Europe apart for the first half of the 16<sup>th</sup> century.

Still, just as the gun was not a western invention, neither was it true that the West held a monopoly on firepower. Other societies, notably the Ottoman, Turks and Japanese, not only adopted guns quickly, but learned to use them to great military advantage. Unlike the peoples of the Americas, Siberia, and elsewhere who were overwhelmed quickly, these

societies were able to hold the West at bay until the mid-to-late 19<sup>th</sup> century.

By many accounts, the firearm arrived in Japan in 1542, on the island of Tanegashima. According to the most popular retellings,<sup>1</sup> two Portuguese guards were on board a ship that became stranded off the coast of Tanegashima. These men carried with them *arquebuses*, the smaller predecessor of the musket. One afternoon, while walking with the local *daimyo*, Lord Tokitada, one of the Portuguese shot a duck. Impressed by the power of this new weapon, Lord Tokitada arranged for a series of shooting lessons and within one month, he had purchased both guns for 1000 *taels*<sup>2</sup> of gold each. Lord Takitada ordered his swordsmith, Yatsuita Kinbei, to use his metalworking skills to make copies of the guns. While the making of the barrels was straightforward



Figure 4-5: Model of a 14<sup>th</sup> century European *arquebuser*

enough, the cutting of a screw thread for the breech plug proved beyond Yatsuita's abilities. A few months later, a ship arrived with a Portuguese armorer on board. Yatsuita purchased the secret of cutting the screw thread by giving his 17-year-old daughter to the ship's captain. Within a decade, Japanese firearms were being manufactured to a high standard and were traded all over the country. While this story is certainly popular in most western literature dealing with the subject, there are other possibilities to consider. Firearms had been introduced into Korea by the mid-1300s.



Figure 4-6: *Wako* influence map

While it is unknown whether or not the Mongols used firearms in their attempted invasions of Japan in 1274 and 1281, the Koreans and Chinese did use firearms against Japanese pirates, often called *wako* (*wokou*), beginning by the 1370s. The *wako*, sometimes referred to as an ‘armed foreign-trade merchant group’ (Chase, 2003), was actually a joint Portuguese and Japanese venture. They were deeply involved in smuggling and trading off the coast of China and in the seas of Southeastasia from the 13<sup>th</sup> through the 17<sup>th</sup> centuries. Consider that advanced European firearms had been entering China for some time through this network and it becomes highly unlikely that firearms did not arrive in Japan before 1542. A recent exhibition at the National Museum of Japanese History entitled “The Introduction of Guns in Japanese History – From Tanegashima to the Boshin War”<sup>3</sup> stated that the construction of extant examples of the earliest guns found in Japan showed that they were imports from Southeastasia, not Europe. Thus, the *wako* were likely responsible for the firearm’s initial introduction into Japan.

Regardless of how and when they arrived, the impact of firearms on warfare in Japan dates from sometime after 1542. Initially guns were used for hunting or were given as gifts. While weaponsmiths hurried to learn the secrets of manufacturing firearms, the import of foreign guns continued to increase. Interestingly, it seems that Christianity may have played an important role in the spread of firearms through importation. The Jesuits, always eager to make converts, held out the prospect of increased trade with the Portuguese as an incentive for conversion. Several prominent warlords, such as Shimazu Takahisa and Otomo Yoshishige, accepted Christianity at least in part to secure access to foreign goods, particularly firearms (Chase, 2003).

On May 21, 1575, Japanese firearms exploded onto the stage at the battle of Nagashino, where 3000 peasants turned musketeers under Oda Nobunaga wiped out the opposing Takeda



Figure 4-7: Samurai with *arquebus*

cavalry. While Europeans were focusing on how to fire guns faster, the Japanese concentrated on accuracy. By 1560, Nobunaga had begun experimenting with arrangements conducive to salvo fire. This was done by forming his musketeers into separate lines and teaching them to fire in volleys; while one line fired, the other lines would reload. By the time of Nagashino, he was able to effectively deploy his troops in just three lines and still maintain regular fire.

The use of firearms in battles continued to increase, due largely to growth of local manufacturing centers. The main source of local gunsmiths was Kunitomo village in Omi. As war escalated, Kunitomo was inundated with orders from all over the country. The gunsmiths' guild was formed to handle this situation, and eventually expanded to cover the whole of Japan.

The scale of battles grew larger, finally culminating with the battle of Sekigahara in 1600. Following the death of *shogun* Hideyoshi Toyotomi in 1598, Japan fell back into the cycle of civil unrest. Several prominent *daimyos* began jockeying for position, the foremost of these being Tokugawa Ieyasu. His main adversary in his vie for power was Toyotomi's former inspector general, Lord Ishida Mitsunari. As tensions mounted, lesser *daimyo* aligned themselves with one or the other of the opponents. Finally on October 21, 1600, after several earlier skirmishes, the full battle commenced. Tokugawa decidedly bested Ishida in the largest battle ever fought on Japanese soil. More than 170,000 combatants saw action at Sekigahara, with casualties numbering above 40,000. Following Sekigahara, it was only a matter of time



until Tokugawa achieved his ultimate goal. In 1603, Emperor Go-Yozei bestowed upon him the title of *shogun*. He and his clan would hold that title for more than 250 years (Murphy, 2005).



Figure 4-8: Tokugawa (Edo) period (1603 – 1868) screen depicting the battle of Sekigahara

Tokugawa succeeded in unifying Japan, ending much of the civil conflict. This lessened the demand for firearms and many gunsmiths returned to making swords. However, contrary to a popular misconception,<sup>4</sup> the Japanese continued to possess and produce firearms throughout the Tokugawa period. Just as there were different schools of martial arts and sword-crafting, there were also different schools of gunnery and gun-making, nearly 200 of them by the close of the Tokugawa period. In the event of a war, each lord was required to provide a predetermined number of soldiers and guns for the *shogun*'s use. These numbers were based upon the number of people and the annual income of the domain. The prohibition on the ownership of weapons by commoners which was set up by order of Hideyoshi in 1588 was still being enforced, but only sporadically. However, this prohibition applied not only to firearms, but to all weapons. There

were still a large number of guns in private hands, due to exceptions granted for firearms used in hunting and security. As local demand for guns decreased further, Japan began to export firearms. Spain, in its attempts to settle the Philippines, became one of the largest purchasers of Japanese firearms during the mid to late 1600s.



Figure 4-9: Tokugawa (Edo) period *arquebuses*

The use of firearms caused changes to many aspects of warfare. In Europe, it was gunpowder that eventually drove the heroic image of the mounted, armored knight from the battlefield. Armor could be made of sufficiently heavy weight as to stop projectiles, but it was then too heavy to wear. The only alternative defense was mobility, which required the



Figure 4-10: Lion armor, Italian or French, mid 16<sup>th</sup> century

discarding of surplus armor. As the need for heavy armor decreased, armorers and metal-smiths begin adding more decoration and innovation to what orders they did receive, trying desperately to extend their livelihood. The suits that were constructed during this time were of increasingly complex design and beauty. Still, by the middle of the 16<sup>th</sup> century, it was clear that the era of the mounted knight in armor was over.

The reduction in the wearing of armor and the need for mobility was perhaps the leading factor for the decreasing weight of swords, a phenomenon which eventually led to the development of the *espada ropera* and the *rapier*. The sword used by the knight during the early 1500s remained essentially unchanged, but new swords were being developed during this period in response to specific needs and requirements.

Various types of sabre-like arms were first brought to Eastern Europe by nomads as early as the 6<sup>th</sup> century. However, it was not until the 14<sup>th</sup> and 15<sup>th</sup> centuries that a curved sword was adopted in European warfare. *Szabla* is the general Slavic word for sabre. In particular, it is used to describe a specifically eastern European one-edged, sabre-like weapon with a curved blade and, in most cases, a double-edged tip called a *pioro* (feather). Initially used by light cavalry, with time it also evolved into a variety of arms used both for martial and ceremonial purposes. The *hussar* sabre was perhaps the best-known type of *szabla* of its time and became a precursor to many other such European weapons. Introduced around 1630, it served as a Polish cavalry-to-cavalry melee weapon. Much less curved than its Armenian predecessors, it was ideal for horseback fighting and allowed for much faster and stronger strikes. The heavier, almost fully closed hilt offered both good protection of the hand and much better control over the sabre during a skirmish. The soldier fighting with such sabre could use it with his thumb extended along the back-strap of the grip for even greater control when



Figure 4-11: Stanisław Antoni Szczuka in a representative national Polish outfit with ornamental *szabla* (artist unknown)

'fencing' either on foot or with another experienced horseman, or by using the thumb-ring, a small ring of steel or brass at the junction of the grip and the cross-guard through which the thumb is placed, could give forceful downward swinging cuts from the shoulder and elbow with a 'locked' wrist against infantry or less experienced horsemen. This thumb ring also facilitated faster recovery of the weapon for the next cut. Such sabres were extremely durable yet stable, and were used in combat well into 19<sup>th</sup> century.

Another sabre-like sword, the *shashka*, originated among the mountain peoples of the Caucasus and was used by most of the Russian and Ukrainian Cossacks. The *shashka* was a very sharp single-handed and guardless sword, often with a large, curved pommel. In appearance the



Figure 4-12: *Shashka* (date unknown)

*shashka* was midway between a full sabre and a straight sword. It had a slightly curved, double-edged blade, either hollowed or fullered, that was effective for both slashing and thrusting. It was carried in a wooden scabbard that enclosed part of the hilt. It was worn with the cutting edge to the rear, opposite to the sabre. The construction of a *shashka* fits its primary combat technique. The strike was applied by the part of the blade close to the hilt, and then the *shashka* was pulled to increase the cutting action. This accounts for the absence of the guard, as the closer the strike to the hilt, the more initial force was applied by the balance of the blade and the longer pulling was possible. The hilt was slightly curved down, thus providing an additional leverage for pulling the *shashka* and for additional force by wrist action. Like most medieval



and then imperial Russian weaponry of the time, the *shashka* and its scabbard were often very ornately decorated, with gold and silver engravings, embedded gems and stones placed into, and figures carved out of or into, the hilts.

The 15<sup>th</sup> century also saw the appearance of shortened swords to replace the long knives of the infantry and bowmen. The *katzbalger*<sup>5</sup> is a good example. A short arming sword, it was



notable for its sturdy build and a distinctive s-shaped or figure-8 shaped guard. The *katzbalger* would often be used by pikemen, archers and crossbowmen as a last resort if the enemy were to draw too close for bows or pikes to be effective. In Italy, the knife was replaced by the *cinquedea*, so named because it measured approximately five fingers width at the base. It tapered sharply to provide a point for thrusting. Due largely to the increasing perfection of plate armors, the falchion became less popular around the beginning of the 15<sup>th</sup>

Figure 4-13: Reproduction *katzbalger*

century. In England, it was replaced by a short sword with a single edge and a sharp point. Instead of the standard cross hilt, the rear quillon was bent upwards and backwards to meet the pommel, thus providing a rudimentary knuckle-bow, and the front quillon was bent towards the blade, giving an S-shaped guard. However, by the beginning of the 16<sup>th</sup> century, falchions reemerge, this time as elaborately decorated weapons for the nobility.

On the Continent, additional guards were added to the sword hilt specifically for soldiers not wearing steel gauntlets. In Spain, hemispherical arms or loops were added to the base of the cross guard to give protection for the fingers looped over the guard. Towards the end of the

1600s, a side ring was added which joined the ends of these arms together. More complicated forms of guard incorporating side-rings and knuckle-guards of more than one bar soon developed in both Italy and Germany.

It is from these hilts that the swept-hilt of the *espada ropera* and the *rapier* of the 16<sup>th</sup> and 17<sup>th</sup> centuries developed. A design book by the Italian master-craftsman Filippo Urso of Mantua, now in the Victoria and Albert Museum, shows this clearly. Dated 1554, its sketches depict virtually all the basic forms of swept hilt that are more usually associated with the later 16<sup>th</sup> century. The development of these elaborate guards no doubt benefited the infantry of the times, however, the driving force behind these new innovations likely stems from



Figure 4-14: Danish swept hilt c. 1600

the need to protect the unarmored hands of the citizens, who often wore blades as a part of civilian attire. Swords were worn not only for use in self-defense and in the settling of duels, but as fashion accessories. In the Renaissance period, wealthy nobles would commission weapons with extravagant decoration. Sword furniture<sup>6</sup> was often gilt, chiseled, pierced, enameled or encrusted with silver, gold or fine gems. Costly or unusual looking swords were heavily sought after by those with the means to afford them. The foremost artists of the age, including Hans Holbein the Younger, were involved in the design of sword hilts. These designs were often carried out by equally famous artist-craftsmen such as Benvenuto Cellini. There was



Figure 4-15: Modern swept hilt

a tremendous export trade in blades and furniture from Spain, Italy and Germany; German makers often copied the marks and signatures (frequently misspelled) of well-known foreign bladesmiths such as Caino and Piccinino of Milan, or Sahagun and Hernandez of Spain (Edge and Paddock, 1988).

It is not known precisely how or when the predilection for wearing swords with civilian attire got its start. Still, the astute scholar cannot help but wonder if it was not some clever marketing scheme developed by swordsmiths of the age who, upon seeing their livelihoods threatened by the introduction of the firearm, were simply seeking to create a new clientele.

In Japan, Oda Nobunaga and Toyotomi Hideyoshi had brought the long civil wars to an end. The period of war was replaced by a peaceful interim, in which the sword lost much of its functional value. Stylistically, the length of the *tachi* was shortened, the cutting edge reduced to about two feet,<sup>7</sup> and the samurai began carrying it by inserting it between the hip and the sash. This new sword is commonly referred to as the *katana*. During the later part of the 16<sup>th</sup> century, a second, shorter sword, called a *wakizashi*, was carried with the *katana*. The pair of swords, called a *daisho*, was worn with both handles protruding upward and had matching furniture. This set distinguished samurai from other people, such as physicians and certain artists, who had the right to carry a single sword. No samurai was ever without a sword either in armor or in civilian clothes. They often valued their swords above all other things, and a sword forged by a celebrated master was one of the most prized gifts that a warrior could receive from an appreciative *daimyo*. Akechi



Figure 4-16: 1894 cartoon drawing of Mr. Henry David Erskine wearing *rapier*

Mitsuhide, the samurai who murdered Oda Nobunaga in 1582, provided a good example of the samurai's attachment to the weapons when besieged in his castle by Hori Hidemasa. Facing certain death, his first concern was that his swords should survive intact. He sent a message to Hidemasa, saying: 'I have many excellent swords, which I have cherished all of my life ... they are part of the heritage of Japan itself. I will die happy, if you will stop your attack for a short while, so that I can have the swords sent out.' Hidemasa agreed and the weapons were lowered from the castle walls, carefully wrapped in padding to protect them.



Figure 4-17: Modern *daisho* set

During the early part of the Shinto period (1530 – 1867 C.E.), the traditional and distinctive methods of the Five Schools were lost, and nearly all castle towns became centers of the sword-making art, but toward the end of the period, the art of sword-making declined and emphasis was placed more upon looks than usefulness. The smiths were busy placing extravagant engravings on their products, and one can find on the swords of this period images of flowers, shrubbery, and dragons, instead of simple characters and grooves of older swords. Even in the tempered lines of the swords there may be found intricate and picturesque representations of maple leaves, cherry blossoms, chrysanthemums and Mount Fuji.



Figure 4-18: Sword fittings circa 1681

The art of sword furniture flourished during this period, with many artisans focusing on the *tsuba* (hand guard) and other parts of the sword decoration. In Japan, sword fittings always formed an important part of a samurai's private possessions. A samurai might own two swords, or he might have many more, but his only luxury of adornment (his jewelry so to speak) was the belt and fittings of his weapons, the furniture becoming ornamental accessories to the necessary parts of the weapon over the course of time. When wearing a sword, it was always placed so that the *tsuba* came to almost the exact center of the body, making it a major

aspect of the dignity of the samurai's appearance.

The great majority of the *tsubas* were wrought in iron, the technique of manufacture being fully developed in Japan by the 16<sup>th</sup> century. The quality of the metal was extremely high, magnetic ore and charcoal precluding the presence of sulfur or phosphorus in the resulting billets. The swordsmith had the troublesome task of finishing the iron by hand-smithing and repeated heating to eradicate the last traces of carbon. Copper was used as a foundation for decorative work from the 1500s onwards, but it is to the alloys of copper that the artists turned for effect in their best productions, chief among these being the essentially Japanese alloys, *shakudo*, *shibuichi* and *sentoku*.<sup>8</sup>



Figure 4-19: Iron *tsuba*



Figure 4-20: Three *tsuba* (left to right: *shakudo*, *shibuichi* and *sentoku*)

There were many artists concentrating on the crafting of sword furniture, particularly *tsuba*-smithing. Jakushi (d. 1707 C.E.) was a noted painter from Nagasaki. He began crafting

*tsuba* late in life. His classic works are Chinese landscapes

with mountain villages and seashores, carved of fine iron in

very low relief with gold cresting the hills and highlighting

other areas. Honami Koetsu (1558 – 1637 C.E.), noted calligrapher and collaborator with famed *yamato-e* artist

Sotatsu, was the descendant of a family that cleaned,

polished and appraised swords for the military. The Honami

family not only dealt with swords, but also advised on sword



Figure 4-21: Iron *tsuba* with Chinese motif

accoutrements and the lacquer stands on which swords were kept.

Outside influences had a great impact on the design of sword furniture. Examples of *cloisonné* enamel had been imported from China by the 17<sup>th</sup> century. It was not long afterward that artisans were using this technique as a decorative element on sword fittings. By the late Muromachi period (1336 – 1573 C.E.), *kagamishi* (mirror makers) had been producing works based upon imported Chinese and Korean mirrors for several centuries. It was probably inevitable that the shape of these flat, decorative bronze discs would be associated with the



similar size and shape of the *tsuba*. *Tsuba* in the style of the old mirrors, usually cast of bronze and *yamagane* (unrefined copper), were often produced in the mirror makers foundries.

The arrival of westerners in Japan during the 17<sup>th</sup> century, and the subsequent conversion of a number of samurai to Christianity, gave rise to a type of iron *tsuba* called *nambam* (southern barbarian), a term that refers to people and things of foreign origin. Although eventually produced in many areas, *nambam* were probably first made around the port city of Nagasaki, where most European traders were sequestered. There are three common types: those with a cross prominently displayed; those with carvings of foreigners or foreign motifs; and those having a woven texture or design of overlapping and intertwined iron cords, somewhat resembling European sword guards. Early *nambam tsuba* are rare, since many were destroyed during two centuries of repression of Christianity.



Figure 4-22: *Kagamishi-style tsuba*



Figure 4-23: *Nambam-style tsuba*

The decorative styles of 18<sup>th</sup> century *tsuba* matched their peaceful use; ornamentation of the *tsuba* became an end in itself and the art deteriorated. The swordguards of the 18<sup>th</sup> and 19<sup>th</sup> centuries had for their foundation a soft homogeneous iron, so free from flaws, that on being struck with the hammer it gave a high pure note. As time went on the quest for new and startling effects brought forth a plentiful harvest of patinas. Iron, once prized for its rich black color with some tinge of blue, brown or reddish tone, became disguised by chemical treatment, so that its



Figure 4-24: 19<sup>th</sup> century collector's export *tsuba*

surface imitates *shakudo*, yielding a range of colors from blue-black to deep russet, which 19<sup>th</sup> century craftsmen used to notable effect. The surface became smooth and evenly matt, the *tsuba*-smiths discarding as unworthy the richer complexion and feeling of the earlier work. Although a few individuals and schools maintained the high standards of previous eras and produced magnificent works even in the 20<sup>th</sup> century, a general conversion of art to artisanship continued until the wearing of

swords was banned by Imperial decree in 1871, and the blades and fittings largely passed into the province of the scholar and collector.

By the late Tokugawa period, the gradual neglect of the martial arts in favor of office work, the need for supplementary trades, and the lure of townsmen's pleasures produced an economic effect far beyond the official boundaries of the samurai class. If the suppliers of credit, prostitutes and theatres were the new profiteers, the older craftsmen, such as swordsmiths, suffered with their former patrons. A poignant example is recorded for the swordsmiths of Kanazawa. At the time of the foundation of the Kaga *han* (domain) there had been a great demand for their skills. Maeda Toshitsune (1593 – 1658 C.E.) once placed an order for five *katana* and 650 *yari* (spears), the order being fulfilled by seven swordsmiths. One good sword by the leading Kaga swordsmith, Kiyomitsu Shichiemon, could cost the equivalent of one *koku*<sup>9</sup> in wages, plus materials and Kiyomitsu was used to receiving orders for up to twenty *katana* at any one time. Yet, within two generations, his grandson Chobei was forced by poverty to the poorhouse, where he continued to make one or two swords.



In 1720, when the daimyo of Kanazawa placed an order for swords, the swordsmith chosen had to look up old records to find out what price to ask. Many of the swordsmiths by then made more money from making pots and pans. A group of swordsmiths once petitioned city magistrates asking to be allowed to gather firewood, claiming that they were starving, that there had been no orders for swords from the *han* or from the samurai and that their business prospects were poor.



Figure 4-25: *Saotome Muromachi tsuba*

## End Notes

<sup>1</sup> Recounts of this story appear in many books, including several sources used in the writing of this paper. The included version is paraphrased from the works of Dyer, Elison, Frederic, O'Connell and Perrin.

<sup>2</sup> The *tael* is the name used in English to refer to various weight measures of the Far East. Most commonly, it refers to the Chinese *tael*, a part of the Chinese system of weights and currency. In general the silver *tael* weighed around 40 grams. If we carry this measure forward, the story would indicate that Lord Takitada gave 1411 ounces, just over 88 pounds, of gold for each gun.

<sup>3</sup> Exhibition dates: October 3 thru November 26, 2006. Special Exhibition Galleries, National Museum of Japanese History.

<sup>4</sup> The source of the myth of the Japanese ‘giving up the gun’ is Noel Perrin’s 1979 book. Like many other myths, it did not even originate with the people whose mentality it purports to illustrate. Perrin’s argument is not taken seriously by specialists in this period of Japanese history, be they Japanese or otherwise. When the book was translated into Japanese in 1984, the Japanese translator commented in the postscript: “This book does not take as its goal the empirical examination of the events of the past.” Unfortunately, Perrin’s work is still cited all too frequently by historians who, like Perrin, do not read Japanese and are unfamiliar with Japanese history (Chase, 2003).

<sup>5</sup> There are several different explanations as to the origin of the name *katzbalger*. One suggests that it comes from the custom of carrying the sword without a scabbard, the sword being held in place only by a cat’s skin. The German word *katze* means ‘cat’, while *balg* means ‘skin of an animal’. However, this theory seems somewhat unlikely, as most extant examples of *katzbalgers* of the period include scabbards. A more plausible theory is that the word derives from *balgen* (brawling), and refers to the intense, close-quarters combat like fights between feral cats. However, the most common translation is ‘cat-gutter’.

<sup>6</sup> Sword furniture is a term used to describe all the parts of a sword except for the blade. This includes the guard, hilt, pommel, scabbard and any additional accessories used in either the wear or the care of the sword.

<sup>7</sup> This length was not standardized. Unless they were very poor or possessing familial weapons, samurai generally carried blades that were custom made to order.

<sup>8</sup> *Shakudo* is an alloy of copper-bronze, to which is added on 4% of gold. It changes color from red to purple-black when boiled in a suitable pickling solution, again changing with age to varying tinges from black to brown. When the alloy contains only 3% gold, a rich blue-black hue results. *Shibuichi* is an alloy of copper and silver, in which the proportion of silver is one-fourth and often half the weight. Its natural yellow color becomes gray when pickled, and varies according to the amount of silver present. *Sentoku* (*Sentokudo*) is an alloy of copper, tin, lead and zinc, imitating the Chinese bronze of the Ming dynasty, particularly from the years 1426-1435 C.E.

<sup>9</sup> A *koku* was the amount of rice considered necessary to feed one man for one year.

## Chapter Five

### Conclusion

“Life resembles the banquet of Damocles; the sword is ever suspended.”

~ Voltaire

By the mid 1700s, firearms and other modernized weaponry were standard military issue in Europe. Officers still carried swords into battle, often some form of cavalry sabre, but the newly developed *bayonet*<sup>1</sup> replaced the defensive swords and long knives of the common soldier. As their use on battlefields faded, swords were relegated to realm of dueling, ceremony and art.



Figure 5-1: 19<sup>th</sup> century  
*bayonet*

Civilians continued to wear *rapiers* and *espada roperas* well into the 1800s in Europe, and duels to settle quarrels were not uncommon among the ‘gentile’ populace. As the pistol



Figure 5-2: 19<sup>th</sup> century duelists

became more common, some duelists abandoned the sword for the gun. However, many duels were not fought to the death, but rather to first blood or some other predetermined victory condition. For this reason, many schools of sword fighting continued to thrive throughout Europe.

The Spanish school of fencing was probably the first solid fencing style to develop from the older forms of sword fighting. Utilizing the long sword, and later the *espada ropera*, it was built upon medieval sword fighting techniques that relied heavily upon almost full arm extension and footwork to keep the opponent at a set distance. The blade served as both offensive and defensive tool. Instead of using a shield or

buckler, the style depended on quick movements and deft deflections, using both the slash and the thrust as attacks. The Spanish style is often described as a complicated and mystical affair due to its extensive use of geometry and its complex circle of defense. The difficulty in mastering the style, combined with the rigid laws and customs regarding dueling in Spain, meant that sword fighting did not become as popular in Spain as it did in the rest of Europe.



Figure 5-3: Spanish fencing sword

Spanish sword masters and Italian merchants brought the Spanish methods of fencing to Italy, where some of its elements were incorporated into an Italian style. The Italian style is the best documented of all European fencing schools, with instructional texts written by such Italian masters as DiGrassi, Agrippa, and Capo Ferro still in existence. The Italian style spread throughout Europe, influencing many other schools of sword fighting. The French style developed almost completely from it and the basis of modern *epee* and foil fencing draws strongly from the tenets of the Italian school.



Figure 5-4: 1840s foil

Ceremonially, swords were used in official court functions, military parades and bestowed as gifts to dignitaries, nobles and wealthy patrons. These swords were more decoration than weapon, often completely encrusted with gold, gems and other precious materials. Structurally, blades were often etched, filigreed or inlaid, making them almost completely useless in a combat role. The furniture for these decorative blades included intricately woven

swept and basket hilts and delicate scabbards. The commissions for these pieces were often given to silversmiths and jewelers instead of swordsmiths, pushing the sword-making craft further towards obscurity.

It is with this turn towards ceremonial rather than military use that the sword ultimately passes into the realm of art in Europe. Already in decline, sword-making for military purposes almost totally disappears by the end of the 19<sup>th</sup> century in Europe and the West. Traditional sword-crafting techniques handed down for centuries were now preserved for their artistic value and for the sake of posterity.

In Japan, from 1804 to 1867 C.E., a slight revival of sword-craft took place. New swords were being sought for the samurai officers mobilized to handle a feared (though never realized) threat of Russian encroachment in northern Japan during the *sakoku*<sup>2</sup> period.

Japan was finally reopened to the West in March, 1854. Following the Meiji Restoration of 1868, reforms of political, social and military nature occurred within a relatively short amount of time. The emperor was returned to the throne and the feudal system was abolished, replaced by a Western-style legal system and a quasi-parliamentary constitutional government. The Imperial Japanese Army (IJA) was established, mimicking Western armies in command scheme and personnel division.

Naturally enough, demand for the Japanese sword declined abruptly with the introduction of a Western military system, and most smiths had to give up sword production altogether. The



Figure 5-5: Samurai, mid 1800s (photographed by Parisian Nadar)

traditions of the warrior culture, unsuited to the new age, fell away one after another. The government's policy was to try and modernize and to catch up with the West as quickly as possible, and the old traditions, including the wearing of swords, were considered a hindrance.

In 1869, Mori Arinori submitted a proposal concerning the ban on sword-carrying. The following year, the government banned civilians from wearing swords, and the year after warriors were encouraged to cut off their topknots (a symbol of their warrior status) and also to go out without their traditional pair of swords. A military conscription system, together with a more extensive ban on the wearing of swords, was adopted in 1876. Known as the Haitorei edict, it excluded only high-ranking officials such as ex-daimyo, the military and policemen. Warriors gradually came to accept their new lifestyle and abandoned their swords, though there were some dissidents who rebelled against the Haitorei edict. After the decree of the edict, sword production, which had thrived at the end of the Tokugawa period, dropped off rapidly, and swordsmiths were forced to look for other work.



Figure 5-6: *Great Sino-Japanese Battle at Fenghuangcheng*  
by Toyohara Kunitaru III, October 1894



Despite an armed rebellion against the imperial government, the dispatch of troops to Taiwan, the Sino-Japanese War and the Russo-Japanese War, military activity during the Meiji era (1868 – 1912 C.E.) did not help to increase the demand for new blades. Evidently, a sufficient number of blades had been produced in the past to supply the military's needs.

The artistic value of the Japanese sword was recognized even in the very early stages of the country's sword history, and the formulation of appreciation and evaluation methods helped connoisseurs to develop a discerning eye. After the Meiji Restoration, sword-making came to be recognized as an art form, and swords were highly regarded for their aesthetic value. A new policy which sought to preserve important cultural assets was implemented, and the government created the Department of Antiquities and Conservation in 1871. This was followed by the establishment of a temporary department of research on cultural assets, and then by the enactment in 1897 of a law requiring that historic shrines and temples be preserved.

The system for nominating swords as National Treasures also began in 1897, however only swords owned by shrines and temples were eligible. The law was amended in 1929, extending the honor to swords owned by the state, public organizations, museums and private collectors. In 1933, a law concerning the nomination of important art work was issued to preserve objects of historical and artistic importance, and to prevent significant pieces from leaving the country.

The Meiji emperor was an avid sword-lover and very knowledgeable about the Japanese sword. He also had a deep interest in sword production. He began to designate especially talented craftsmen as Teishintsu Gigei In (essentially the equivalent of the title of Living National Treasure, which is used today) in 1890. Organized by the Imperial family, this system was designed to encourage craftsmen and to preserve the traditional skills of Japanese arts and

crafts. This designation soon came to be considered the greatest honor that a Japanese craftsman could achieve. However, for most smiths, this was still a very difficult time and few swords were actually produced.

The demand for swords as weapons increased as a result of World War I, the dispatch of troops to Siberia, and the Manchurian Incident. During World War II, sword production reached an all-time high. A large number of swords were produced for the use of military officers, but the blades, sometimes referred to as *showato*, were not forged with traditional techniques, and the vast majority were not of a quality high enough to merit consideration as art swords.

For a time after Japan's defeat in World War II, the sword was considered merely a weapon. Orders to destroy all existing swords, including art objects and works of historical



Figure 5-7: WWII era stamped steel Japanese enlisted infantry sword

significance, were handed down from the General Headquarters of the Allied Forces. Sword production was also completely banned. Allied command, at the outcry from the populace, eventually agreed to allow the ownership of blades which had artistic value. Crafting of blades for the Imperial family's personal guard was also permitted. In 1948, the Nihon Bijutsu Token Hozon

Kyokai, or NBTHK, was established by a group of enthusiastic collectors, researchers, connoisseurs and craftsmen who assumed responsibility for the preservation of the Japanese sword and the swordsmithing craft, and worked toward preventing any future threats to the Japanese sword's continued existence.

In 1950, the Cultural Properties Law (*bunkazai hogoho*) replaced the early National Treasure system. As of January 2007, nearly 900 swords had been nominated as Important



Cultural Assets (*juyo bunkazai*) and 122 of those had been designated as National Treasures (*kokuhō*).

Sword production finally resumed in 1953 after the Agency for Cultural Affairs authorized qualified smiths. Thus the Japanese sword formally joined the field of arts and crafts. This was of momentous significance for those smiths who had been unable to work in the immediate post-war years. The first swordsmithing contest was held in 1955, and the blades entered were exhibited at the Tokyo Metropolitan Museum. This annual event is now widely known as the Shinsaku Meitoten.



Figure 5-8: (left to right) *Seven Samurai* (1954), *Zorro* (1957), *The Three Musketeers* (1921)

Swords, though nearly 200 years removed from practical use in most societies, survive today in many forms. From Akira Kurosawa's legendary *Seven Samurai* to Johnston McCulley's *Zorro* and Alexandre Dumas' *The Three Musketeers*, books and stories are filled with sword-wielding heroes of bygone ages. The film industry continues to produce movies every year in which swords are integral to the plot, be it through martial use or as artistic objects of great value. This is true not only of Hollywood, but Eastern film studios as well. The *ninja-to* sword, a western icon of the mysterious *ninja*, is actually a Hollywood creation.<sup>3</sup> Swords are not limited to the historical or pseudo-historical realm either. George Lucas introduced us to the light-sabre

in his *Star Wars* saga, where heroes, known as Jedi Knights, used swords made of light in their battles against the evil empire.



Figure 5-9: Mitsurugi from Namco's Soul Calibur series. The character is meant to resemble Miyamoto Musashi while his sword is called 'Masamune'

Video games are also full of sword-toting characters. Companies such as Koei, Bandai, Namco and a host of others have produced strategy games based on feudal periods in Japan and China, where the player gets to take control of famous personages from those time periods, wielding famous swords and commanding troops in historic battles. Fighting games are also immensely popular. Because many of these games are tailored to Western audiences, sword fighting characters of distinctly Western heritage often wield swords with well-known names such as Excalibur, Tizona and

Tyrfing, while characters of Eastern lineage have swords named after famous smiths or warriors, including Masamune and Muramasa, of whom the audience might have a passing familiarity.

While many militaries still use swords for ceremonial reasons, a common occurrence in the West is the naming of military vehicles after types of swords. The British Rapier is a mobile missile defense system, while the Scimitar is a light armored reconnaissance vehicle. Sports teams are also known for doing this, a good example being the Buffalo Sabres of the National Hockey League.



Figure 5-10: British Rapier missile defense system

Sword fighting, though not seen in combat much in the last 60 years, still exists today as a sport. In Japan, the art of the sword is known as *kenjutsu*. Due to the danger to students and



teachers when using real swords, a new form of practice was developed during the Tokugawa period. Known today as *kendo*, this sport features an artificial sword of bamboo, called a *shinai*, and the wearing of traditional armor. All of the traditional rules of *kenjutsu* are still observed however, and it is believed by the devout practitioner that the *shinai* is 'clothed in the spirit of the sword' (Random, 1984). In the West, traditions of sword

fighting are carried on largely through the sport of fencing. In the broadest possible sense, fencing is the art of armed combat involving cutting, stabbing, or bludgeoning weapons directly manipulated by hand, rather than shot, thrown or positioned (such as caltrops). In contemporary usage, 'fencing' tends to refer specifically to European schools of swordsmanship and to the modern Olympic sport that has evolved out of them. Fencing is one of the four sports which have been featured at every modern Olympic Games. Currently, three types of swords are used in Olympic fencing; foils, *epees* and sabres.

Modern smiths in both the East and the West carry on traditions handed down for generations, crafting beautiful works, both in classic styles and with modern variations. Demand for Damascened and Japanese swords, in a state of decline for the past century or more, has risen globally thanks in large part to the



Figure 5-12: Fencing at the 2004 Athens Olympic Games

modernization of marketing techniques, which touts these weapons as objects of art. Readily available information and images found in books and magazines and on the internet helps promote this idea further.

Still, it seems that the most likely place to find a sword today is in a museum or private collection. Enthusiastic collectors and aficionados have created a thriving market for vintage swords. In recent years, many record-breaking sales have been conducted at auction-houses in Europe and America. On March 31, 1992, a large collection of Japanese swords was brought to auction at Christies in New York. The first day's sale of Dr. Walter Ames Compton's collection totaled over eight million dollars. Tomihiko Inami, president of the Japanese Sword Company of Tokyo, outbid many competitors to acquire a 19<sup>th</sup> century magnolia-decorated *tsuba* for \$88,000 and a 17<sup>th</sup> century small auxiliary sword, called a *kozuka*, embellished with an image of Mount Fuji, for \$104,500. Both prices were records at the time. He also purchased some of the most important larger swords in the sale, including a 13<sup>th</sup> century *tachi* for \$340,000, a 14<sup>th</sup> century *tanto* for \$154,000, and a 15<sup>th</sup> century *katana* for \$132,000. However, the most expensive sword, a 13<sup>th</sup> century Kamakura blade that sold for \$418,000, went to a European collector. On November 6, 2001, a rare Confederate officer's sword, forged by Alexandre Henri Dufilho, a renowned sword maker from New Orleans, sold for \$54,625, a record price at auction for a Confederate object.

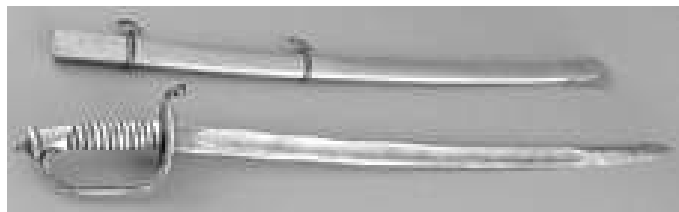


Figure 5-13: Dufilho Confederate officer's sword

On November 6, 2006, in San Francisco, California, the Stephen L. Pistner Collection of guns and edged weapons went to auction. A gold presidential presentation sword and scabbard, awarded to U.S. Naval ensign Edmund Shipp on February 13, 1835, sold for \$147,550. One of

only seven such swords ever made,<sup>4</sup> it is the equivalent of the Congressional Medal of Honor, an honor which did not come into existence until the early 1860s. According to Greg Martin, president of Greg Martin Auctions, when bidding for this sword opened, the price "went from zero to \$130,000 in 60 seconds" (Greg Martin Auctions, 2006). Lastly, a sword worn by Napoleon Bonaparte during the Battle of Marengo<sup>5</sup> went to auction in Paris in June of 2007. The sword fetched nearly six and a half million dollars.



Figure 5-14: Napoleon Bonaparte's sword worn at the Battle of Marengo

Swords have cut their way through history; from early rudimentary killing tools to the weapons of vast armies, from the implements of one-on-one combat to an accoutrement of gentlemanly fashion. In modern times they have become iconic media symbols, sporting accessories and historic collector's items. Perhaps most fascinating of all is the sword's shift, on a global scale, from a weapon of war to a work of art. What has caused humans to hold on so tightly to a weapon that has been outdated for the better part of two centuries? Is it simply a response to a clever marketing ploy by skilled craftsmen, who when faced with the prospect of losing their livelihood, shifted the public's view of their creations? Or is it a need for mankind to

be able to see pieces of history, and in seeing, grasp some understanding of where we came from and how far we've come? Whatever the reasons, there is no question that the crafting of swords, using centuries-old techniques or more modern forging practices, still flourishes in both the East and the West. Acknowledging the classic work by Sun Tzu, perhaps by appreciating the beauty of the sword, we are able to glimpse the Art of War.



Figure 5-15: Modern 'fantasy' sword

## End Notes

<sup>1</sup> In the mid-17th century irregular military conflicts of rural France, the peasants of the Southern French town of Bayonne, who were Basques, having run out of powder and shot, rammed their long-bladed hunting knives into the muzzles of their muskets to fashion impromptu spears and, by necessity, created an ancillary weapon that was to influence Western European infantry tactics well into the 20th century. The weapon was introduced into the French army by General Jean Martinet.

<sup>2</sup> *Sakoku* (seclusion) was a period of some 200 years (1658-1868 C.E.) when Japan secluded itself from outside influence, allowing a much regulated trade with only Dutch and Chinese merchants. This period of seclusion ended with the Convention of Kanagawa on March 31, 1854, when Japan, under threat of what is often considered gunship diplomacy, signed peace and trade treaties with the United States and other western countries.

<sup>3</sup> *Ninja*, hired assassins of feudal Japan, were known to use shortened versions of the *katana*, but no blades with the straight back and sharply angled tip featured in Hollywood movies are known to have ever existed.

<sup>4</sup> Only two are still known to exist today.

<sup>5</sup> June 14, 1800.

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## Glossary

Atsuta Shrine - a Japanese Shinto shrine in Atsuta-ku, Nagoya. It is sometimes referred to as the second-most venerable shrine in Japan, with the most venerable being the Grand Shrine of Ise. The shrine houses over 4,000 national treasures representing nearly 2000 years of history.

Breech plug - in breech-loading guns, the metal plug or cylinder which closes the aperture in the breech, through which the gun is loaded.

Buckler - a kind of shield, of various shapes and sizes, worn on one of the arms (usually the left) for protecting the front of the body.

Carbon Nanotube - a one-atom thick sheet of graphite (called graphene) rolled up into a seamless cylinder with diameter on the order of a nanometer. This results in a nanostructure where the length-to-diameter ratio exceeds 10,000.

Daimyo - the most powerful feudal rulers from the 10<sup>th</sup> to the 19<sup>th</sup> century C.E. in Japan. The term "*daimyo*" literally means "great name."

Epee - a modern derivative of the *rapier*, used in sport fencing. The weapon is similar to a foil, but has a stiffer, V-shaped blade, a larger bell guard, and is heavier. The blade is a concave triangle in cross-section.

Foil - a type of weapon used in fencing. It is the most common weapon in terms of usage in competition, and is usually the choice for elementary classes for fencing in general. Foil blades are flexible enough to bend upon striking an opponent, in order to prevent injuries.

Gauntlets - a name for several different styles of glove. In general, a gauntlet covers the wrist, the hand, fingers and forearms. Gauntlets exist in many forms ranging from flexible fabric and leather gloves, to chainmail and fully-articulated plate armor.

Great Reconquest - also known as the *Reconquista*, it was the seven-and-a-half century long process during which Christians regained the Iberian Peninsula from the Muslim and Moorish states of Al-Andalus.

Guard (sword) - a part of the hilt of a sword, it protects the user's hand from the opponent's sword, and also prevents the user's hand from sliding up onto his own blade. It may contain a cross-guard or quillon.

Habsburg-Valois Wars - often referred to as the Great Italian Wars or the Great Wars of Italy in historical works, they were a series of conflicts from 1494 to 1559 that involved, at various times, all the major states of western Europe (France, Spain, the Holy Roman Empire, England, Scotland, the Republic of Venice, the Papal States, and most of the city-states of Italy) as well as the Ottoman Empire. Originally arising from dynastic disputes over the Duchy of Milan and the Kingdom of Naples, the wars rapidly became a general struggle for

power and territory among their various participants, and were marked with an increasing degree of alliances, counter-alliances, and regular betrayals.

Hilt - the handle of a sword, consisting of a guard, grip and pommel.

Iberian Peninsula - located in the extreme southwest of Europe, it includes modern day Spain, Portugal, Andorra and Gibraltar. It is the western and southernmost of the three southern European peninsulas (the Iberian, Italian, and Balkan peninsulas). It is bordered on the south and east by the Mediterranean Sea and on the north and west by the Atlantic Ocean. The Pyrenees form the northeast edge of the peninsula, connecting it to the rest of Europe. In the south, it approaches the northern coast of Africa. It is the second largest peninsula in Europe, with an area of 362172 sq miles.

Knuckle-bow - a piece of metal that extends from the crossguard to the pommel on some swords, protecting the wielder's knuckles. It was sometimes used to strike an opponent during close combat.

Manchurian Incident - known in China as the Mukden Incident, it occurred in southern Manchuria on September 18, 1931. A section of railroad, owned by Japan's South Manchuria Railway, near Mukden (today's Shenyang) was dynamited by Japanese junior officers. Imperial Japan's military accused Chinese dissidents of the act, thus providing a pretext for the Japanese occupation of Manchuria (today's Manchuko).

Megalithic - structures made of such large stones, utilizing an interlocking system without the use of mortar or cement.

Pike - a very long thrusting spear used two-handed. It was used extensively by infantry both for attacks on enemy foot soldiers and as a counter-measure against cavalry assaults. Unlike many similar weapons, the pike is not intended to be thrown. Pikes were used by European troops until around 1700.

Pole-arm - a close combat weapon in which the main fighting part of the weapon is placed on the end of a long shaft, typically of wood, thereby extending the user's effective range. Spears, glaives, poleaxes and bardiches are all varieties of pole-arms. The purpose of using pole weapons is either to extend reach or to increase angular momentum, and thus striking power, when the weapon is swung.

Pommel - a counterweight at the top of the hilt. Pommels come in a wide variety of shapes, including crescents, oblate spheroids, semicircular, and disks.

Quillon - sometimes referred to as cross-guards, quillons are cross-pieces at right angles to the blade and hilt of a sword, designed to protect the hands of the wielder.

Sabre - (or saber) a generally curved, single-edged blade and a rather large hand guard, covering the knuckles of the hand as well as the thumb and forefinger. Although sabres are typically thought of as curved-bladed slashing weapons, those used by the world's heavy cavalry often

had straight and even double-edged blades more suitable for thrusting. The length of sabres varied, and most were carried in a scabbard hanging from a shoulder belt known as a baldric or from a waist-mounted sword belt.

Salvo Fire - the simultaneous discharge of firearms either to hit a target or to perform a salute.

Samurai - a term for the military nobility of pre-industrial Japan. The word *samurai* is derived from the archaic Japanese verb *samorau*, changed to *saburau*, meaning "to serve". Thus, a *samurai* is a servant, typically to a particular *daimyo*. A masterless samurai was known as a *ronin*.

Scabbard - a sheath for holding a sword or other large blade. Scabbards have been made of many materials over the millennia, including leather, wood, and metals such as brass or steel.

Shinto - the native religion of Japan and was once its state religion. It involves the worship of *kami* (spirits). Some *kami* are local and can be regarded as the spirit of a particular place, but other ones represent major natural objects and processes.

Shogun - a military rank and historical title in Japan. The modern military rank is equivalent to a Generalissimo (a military rank of the highest degree). The shogun was the governing individual at various times in the history of Japan, ending when Tokugawa Yoshinobu relinquished the office to Emperor Meiji in 1867.

Silk Road - an interconnected series of ancient trade routes through various regions of the Asian continent mainly connecting China with Asia Minor and the Mediterranean. It extends over 8,000 km (5,000 miles) on land and sea. Trade on the Silk Road was a significant factor in the development of the great civilizations of China, Egypt, Mesopotamia, Persia, Indian subcontinent, and Rome, and helped to lay the foundations for the modern world.

Tang - the part of the blade that extends into and usually through the grip, which is fastened to it.

Tempering - a heat treatment technique for metals and alloys. In steel, tempering is done to "toughen" the metal.

Topknot - a form of traditional Japanese haircut worn by men. It is most commonly associated with the Edo Period and samurai, and in recent times with sumo wrestlers. It was originally a method of using hair to hold a samurai helmet steady atop the head in battle, and became a status symbol among Japanese society.

Trebuchet - a siege engine employed in the Middle Ages either to smash masonry walls or to throw projectiles over them.

Tsuba - usually a round or squarish guard at the end of the grip of bladed Japanese weapons, such as the *katana* and its various declinations. They contribute to the control of the arm (the right index of the fighter typically touches the *tsuba*), and to the protection of the hand. *Tsuba* are usually finely decorated, and nowadays are collectors' items.

## **Vita**

Born in Honolulu, Hawai'i, and raised in Doyline, Louisiana, Charles Ethridge came to Louisiana State University in 1989 on a United States Navy scholarship. After two years, he decided that active duty was not his calling. The pull of the United States Navy proved too strong however, and Charles enlisted in the United States Naval Reserve, where he served eight years with the Naval Mobile Construction Battalion, or as they are more commonly known, the Seabees. After finishing his undergraduate work at Louisiana State University with a degree in studio arts in 1999, Charles spent seven years working in the museum industry, first as an exhibition coordinator and later as a museum director. His interests include martial arts, military history, Japanese swords, photography and sports.