

## Manual for Appreciating the Japanese Sword

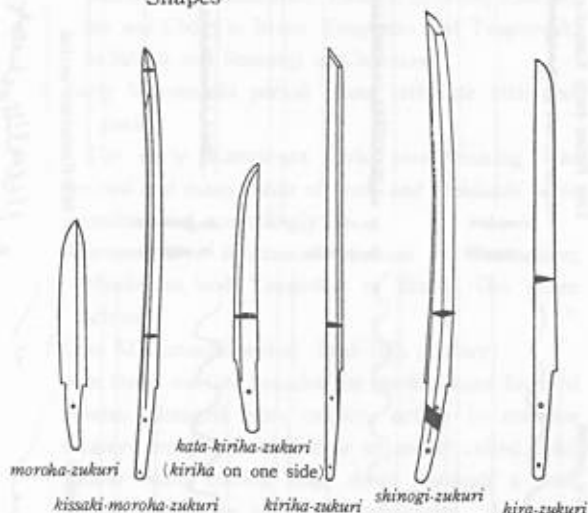
The *Nippontō* (Japanese sword) is said to have virtually no parallel in any other forms of art made of iron. Our ancestors pursued aesthetic beauty even in arms and armour and swords were revered as treasures. Each sword is characterized by its refined shape, thoroughly forged and polished steel surface and beautiful temper patterns which represent specific eras and schools of its maker.

What we call the *Nippontō* includes various forms of blades such as *ken*, *naginata* and *yari* in addition to the more common *tachi*, *katana*, *wakizashi* and *tantō*.

*Tachi*: When you look at swords in museums, those displayed with the sharp edge down are called *tachi*. From the Heian through the early part of the Muromachi period, swords were worn slung from a cord tied around the hip. *Tachi* usually have a high curvature, *sori*, and the length is usually between 65 and 70 cm.

*Katana*: This form of blade replaced *tachi* in the middle of the Muromachi period and was in use until the very end of the Edo period. They were 60.6 cm (2 *shaku*) long or more, but usually they are

### Shapes



somewhat shorter than *tachi*.

Contrary to the way a *tachi* was worn, a *katana* was stuck in the waist sash with its edge facing up.

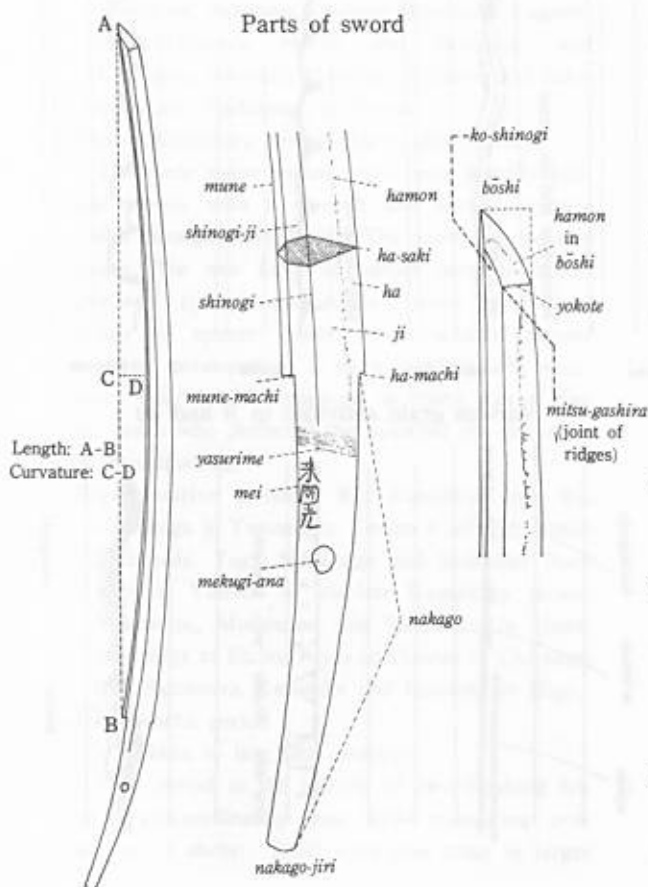
The term *katana* also includes those swords which were originally made as *tachi* but were shortened by *suriage*. They are displayed in the same manner as ordinary *katana*. Some of the swords produced in the *Shintō* period by a group of swordsmiths in the Hizen province, and also those produced in the *Shin-shintō* period at the end of the Tokugawa Shogunate regime, were formed in the *tachi* style.

*Wakizashi*: Swords in lengths between 30.3 cm (1 *shaku*) and 60.6 cm are called *wakizashi*, and were worn on the waist like *katana*. Those that are fairly short, around 36-40 cm (1 *shaku* 2-3 *sun*) are classified *ko-wakizashi*. During the Momoyama and the ensuing Edo period, a *wakizashi* was worn with a *katana* as a *dai-shō* (a pair of large and small swords).

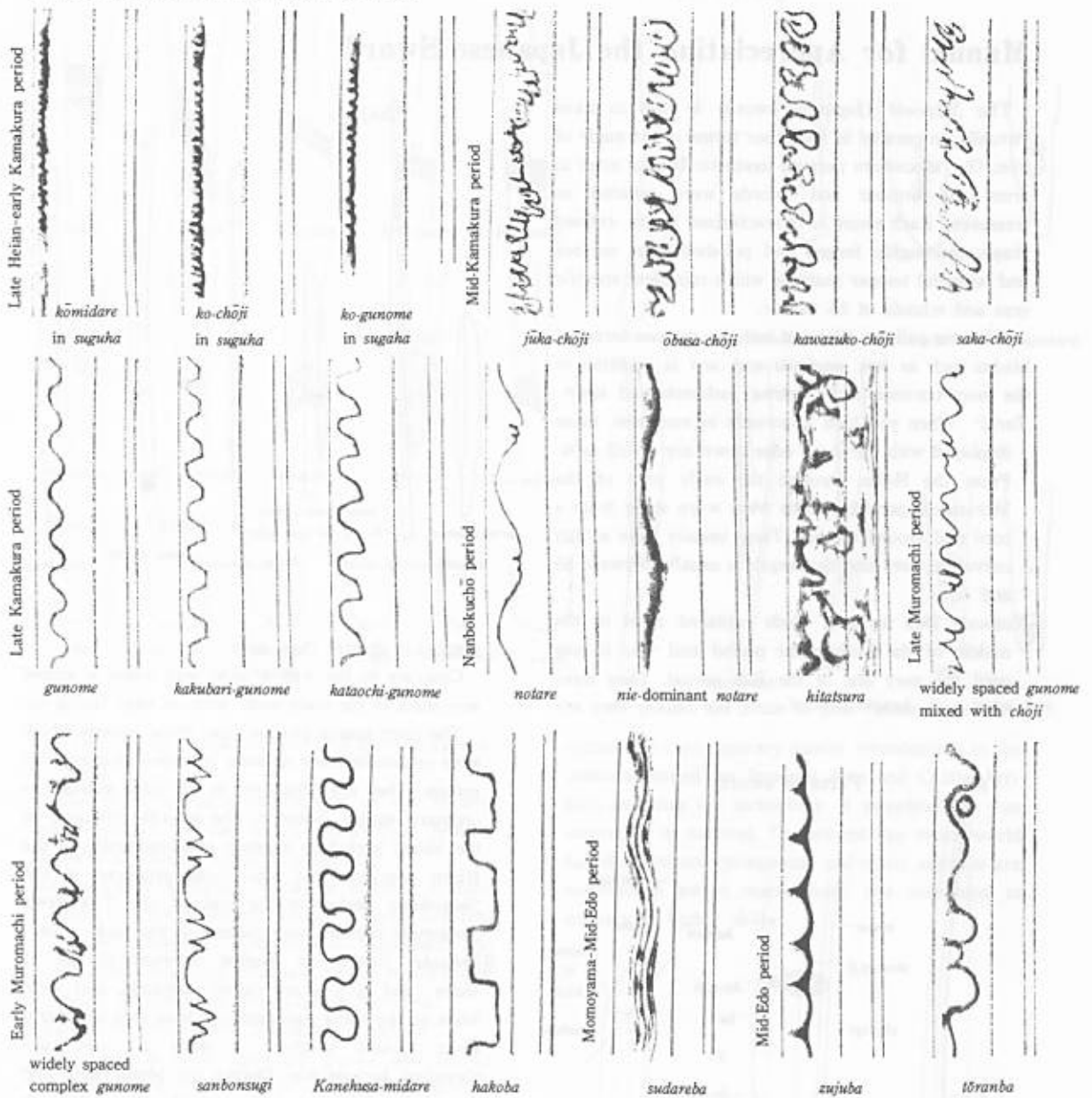
*Tantō*: Swords shorter than 30.3 cm are called *tantō*. *Koshi-gatana* is another word for those very short swords. In old days, the term *katana* meant *tantō*.

Structure (*tsukuri-komi*): Japanese swords are made in various styles such as *hira-zukuri* (flat, ridgeless), *shinogi-zukuri* (longitudinally ridged closer to the back), *kiriha-zukuri* (longitudinally ridged closer to the cutting edge), and *moroha-zukuri* (double-edged).

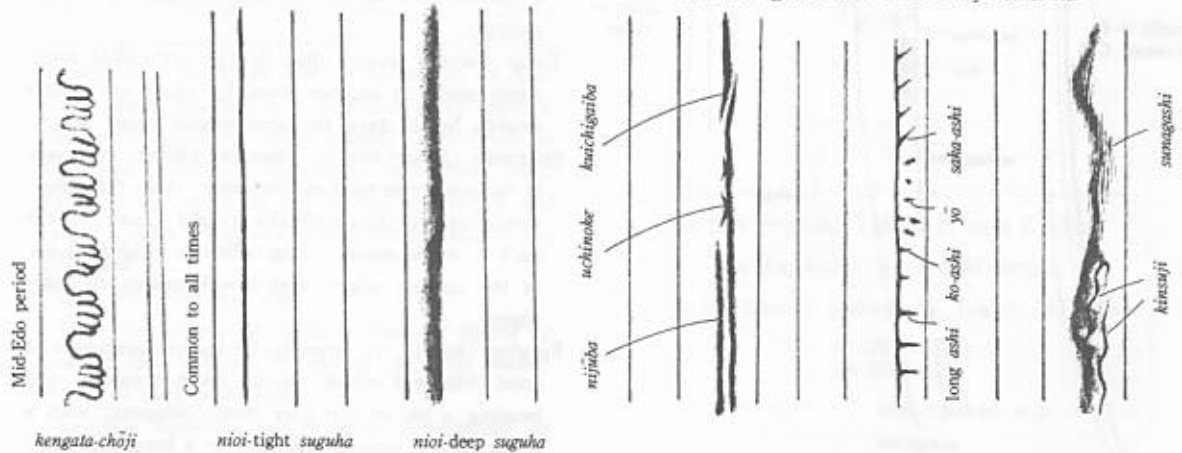
Forging (*hitae*): In order to fill the requirements of good *Nippontō* which should resist breaking and bending, a bar of soft core steel (*shingane*) with a lesser carbon content wrapped by a hard skin steel



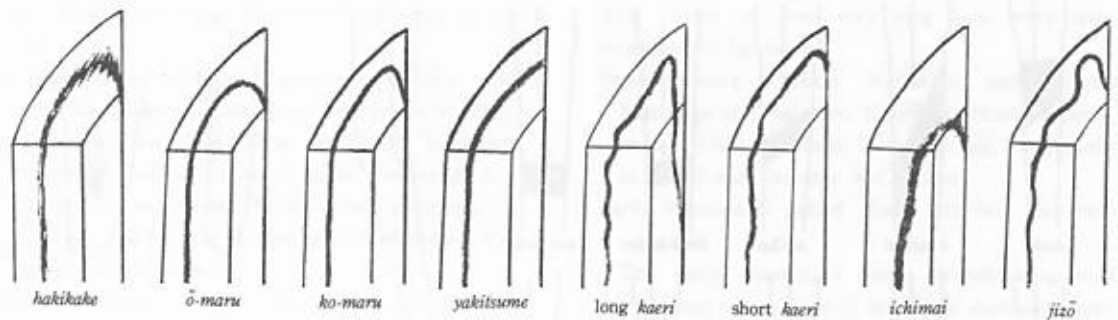
Temper patterns in chronological order



Various grain activities in ji and ha



## Temper patterns in the point



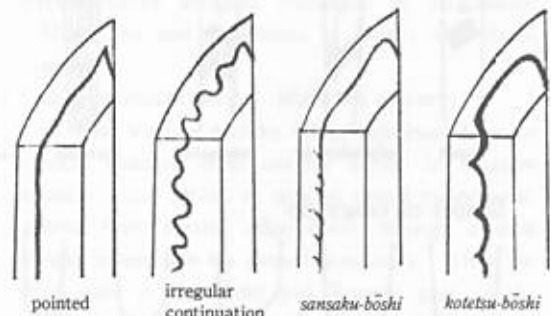
(*kawagane*) with a higher carbon content goes through the forging process. For the outer material, the so-called *tama-hagane* (steel manufactured in traditional charcoal forges) is used, and the layers of steel combined are folded and hammered repeatedly, as many as fifteen rounds.

The wide variety of steel surface markings thus produced are called by such names as *itame* (wood grain), *mokume* (burl grain), *masame* (straight grain), *nashiji* (pear-skin-like tight and even grain structure) and *ayasugi* (concentrically curved lines of grains). Other grain formations include *ji-nie* (individually discernible grains lining the overall grain patterns on the steel surface or *ji*), *chikei* (short, curvy lines of *nie* grains), and *utsuri* (misty darkish areas in the *ji* parallel to the temper pattern), and they represent individual swordsmiths as well as traditional and local schools.

**Nie and nioi:** In the process of tempering, the edge pattern or *hamon* is produced as the border showing the difference in the hardness of steel. *Nie* and *nioi* appear where the temper pattern and the steel surface markings in the *ji* meet. *Nie* are relatively coarse granular particles discernible with eyes whereas *nioi* are so fine-grained a microscope is needed to see them. While *nie* are compared to the individual stars shining in the sky, *nioi* can be compared to the misty line of the milky way.

It was scientifically verified by Dr. Kuniichi Tawara (1872-1918), Japanese metallurgist, that the mixture of very hard steel component called martensite and a medium hard substance formed as the result of tempering shows as *nie* and *nioi* when the blade surface goes through polishing on various kinds of whetstones.

"Activities" of grains in the *ji* (blade surface) and *ha* (cutting section): By "activities" we refer to varied grain formations which make a sword more or less picturesque in appearance. Depending on the kind of formation grains make they are given names such as *ashi* (feet), *yō* (leaves), *sunagashi* (drifting sands), *hakikake* (bloom's sweeping traces), *uchinoke*



(flicks), *kinsuji* (gold streaks) and so on. The most common *kinsuji* are formed of *nie* which come in thin and shiny lines in the edge section. Those that are rather thick and long are separately called *inazuma* (lightning). When similar grain formations are produced in the *ji* they are called *chikei* (scenery in the *ji*). *Yubashiri* (running hot water) refer to bands of *nie* conglomerating in limited areas.

The *nie* lining the grain patterns in the *ji* or the part of the blade other than the edge section and the back are called *ji-nie*. When the blade surface is predominantly *nie*-structured, such a sword is called *nie-deki*, which mostly characterizes early Kamakura works and those of the Sōshū school in general.

*Nioi-deki* refers to swords whose steel surface is mostly composed of misty *nioi* grains. Works of the Bizen school that came after the mid-Kamakura days as well as those of the Bitchū Aoe school in the Nanbokuchō period represent *nioi*-dominant swords.

**Temper patterns (*hamon*):** In addition to the steel surface texture and the overall blade structure, temper patterns need to be studied to adequately appreciate the beauty of the Japanese sword. The *hamon* is a pattern created by means of tempering techniques chiefly devised to harden the cutting edge of the blade.

When a block of steel composed of core and skin metals is repeatedly folded and hammered into a rough blade shape during the process of forging, a kind of ceramic clay called *yakiba-tsuchi* is applied

to cover the entire blade surface. Then, spatulas are used to thin off the coating on the edge section to expose it to a greater intensity of heat as well as to produce certain edge patterns. Depending on how the scraping of the coating called *tuchidori* is done, some blades are meant to have a plain straight temper pattern called *suguha*, whereas others come out with diversified kinds of irregular patterns called *midareba*.

When the coating material dries, the blade is reheated in a charcoal furnace until it is ready to be quenched in cold water. This operation called *yakiire* is considered to require the highest of skill and gut feeling based on experience and expertise.

As illustrated, the term *suguha* represents varied kinds of straight *hamon* such as *hiro-suguha* (wide), *hoso-suguha* (narrow), as well as tight and thick straight lines. *Midareba* includes *ko-midare* (compact), *chōji* (clove shape), *jūka-chōji* (multiple *chōji*), *kawazuko-chōji* (tadpole-shaped *chōji*), *gunome* (zigzag), *kataochi-gunome* (oblique zigzag), *sanbonsugi* (three-cedar clumps), *notare* (wavy undulation), *tōran* (surging waves), *hitatsura* (all over the face), and *sudareba* (rattan blind).

**Point (*bōshi*):** This term refers to the entire point section above the *yokote* (transverse ridge) which is also called *kissaki*. The various sizes of the point and the types of temper patterns produced in it are characteristic enough to indicate specific individual makers or schools as well as the age of production, and thus are very important elements in sword study.

The temper patterns in the *bōshi* are given names such as *ō-maru* (large semicircle), *ko-maru* (small semi-circle), *midare-komi* (irregular continuation), *yakitsume* (all the way up to the back), *jizō* (stone figure's head), and *kaen* (flame).

**Filemarks in the tang (*yasurime*):** *Yasurime* are filemarkings to finish the surface of blade handle called *nakago* (tang). Each school and age of production has its own specific traits marking the unpolished iron surface.

*Kiri*, also called *yoko*, are right-angled parallel cuts and the most common type of markings. *Katte-sagari* creates slopes going down toward the right, ie *katte*, from the left top. *Sujikai* is similar to *katte-sagari* but more acutely angled. When the slopes start from the right top they are called *saka-sujikai*. *Ō-sujikai* is a more emphasized *sujikai* characterizing Aoe and Samonji schools in the *Kotō* period.

Other markings include *takanoha*, also called *shida*, which looks like a hawk feather, *saka-takanoha* like a reversed hawk feather, *kata-sujikai* that is *kiri* and *sujikai* combined, all mainly marking

the Yamato tradition, *higaki* looking like a check pattern and a common trait among Yamato, Mino, Naminohira in Satsuma and other schools, *keshō-yasuri* exclusive in *Shintō* works, and *sensuki* looking like scraped surface found on the primitive non-curved type of *Nippontō* (*Jōkotō*) and earliest *Kotō*.

**Engraving in the blade (*horimono*):** Engraving in the blade already existed as early as the Heian period, and had practical as well as religious and decorative significance. This, too, reflects popular fashions of ages as well as traits of individual smiths and schools. Of the plain straight grooves called *bō-hi* most commonly carved in the blade, there are varied ways of designing the bottom end, such as *kakudome* (square end), *marudome* (rounded end), *kakinagashi* (tapered to a point), and *kakitōshi* (through to tang's tip).

The objects carved in *Kotō* works in addition to the *hi* or grooves were mostly religious and included *Bonji* (Sanskrit), *ken* (dagger), *Fudōmyōō* (an incarnated image of Buddha), *kurikara* (dragon entwined round a sword), *Sanko-ken* (blade with a three-pronged handle), *gomabashi* (a pair of sticks for religious rituals), letters reading HACHIMAN DAIBOSATSU and NAMMYŌHŌRENGEKYŌ and so on. In the *Shintō* ages, the carving increased its decorative importance, and popular motifs included *tsuru-kame* (crane and tortoise symbolizing longevity), *jōge-ryū* (ascending and descending dragons), *shō-chiku-bai* (pine tree, bamboo, and plum blossoms), and Mt. Hōrai (a legendary mountain of eternal youth).

## Chronological Characteristics of Japanese Swords

### 1 *Jōkotō* (Ancient times)

References for this earliest period in sword's history are found among those excavated from ancient burial mounds (4th-9th centuries) and the treasures preserved in the Shōsōin built in the Nara period (8th-10th centuries).

These prototypes of the Japanese sword had no curvature, and were mostly formed in *hira-zukuri* (flat, ridgeless) or in *kiriha-zukuri* (longitudinal ridge parallel and close to the cutting edge).

### 2 Late Heian-early Kamakura period (12th century)

The curved and ridged blade familiar to us as *shinogi-zukuri tachi* came into existence about this time. In addition to the ridges incorporated in the blade structure, this type of blade was characterized by a marked difference in width between the tip and the base. Also the curvature was marked with

*koshizori* emphasized at the base and *funbari* forming a strong stretching line toward the back of the point.

Representative artisans: Sanjō Munechika and Gojō Kanenaga in Yamashiro; Yasutsuna in Hōki; Tomonari and Masatsune in Bizen; Ichimonji Norimune and Sukemune in Bizen; Sadatsugu and Yasutsugu in Bitchū; Miike Tenta Mitsuyo in Chikugo; Yukihira in Bungo; and Naminohira Yukiyasu in Satsuma.

### 3 Middle Kamakura period (Mid-13th century)

This period coinciding with the height of the *samurai* power based around the eastern capital of Kamakura gave birth to a most stately *tachi* form consisting of ample thickness (*kasane*), little tapering in blade width toward the point, and ample convex curvature in the blade surface between the cutting edge and longitudinal ridge placed slightly closer to the back. The most popular kind of temper pattern was flamboyant *chōji*. *Tantō* were also manufactured in large numbers.

Representative artisans: Awataguchi Kuniyoshi and Yoshimitsu in Yamashiro; Kuniyuki, Niji Kunitoshi and Rai Kunitoshi of the Rai school in Yamashiro; Senjuin, Hōshō, Shikkake, Tegai and Taema in Yamato; Kunimune, Sukezane, and Shintōgo Kunimitsu in Sagami (Sōshū); Ichimonji Yoshifusa, Sukefusa, Osafune Mitsutada, Nagamitsu, Hatakedā Morie and Sanemori, and Katayama Ichimonji Norifusa in Bizen; and Sukezane and Yoshitsugu in Bitchū.

### 4 End of Kamakura period (Early 14th century)

The blade shape became even more sturdily built and stately with a marked and almost uniform width throughout its length. The point also became larger. The new kinds of temper patterns named *gunome* (zigzag) and *notare* (wavy undulation) began to appear. Later, *noi*-structured temper patterns developed to a more *nie*-dominant structure. Gorō-nyūdō Masamune in Sōshū was a master smith who perfected the so-called *nie-deki* style of swordmaking.

Representative artisans: Rai Kunimitsu and Rai Kunitsugu in Yamashiro; Taema Kuniyuki, Hōshō Sadayoshi, Tegai Kanenaga and Shikkake Norinaga in Yamato of mid-late Kamakura period; Yukimitsu, Masamune and Sadamune in Sōshū; Norishige in Etchū; Jitsua and Sairen in Chikuzen; Enju Kunimura, Kunisuke and Kunitoki in Higo.

### 5 Nanbokuchō period

(Middle to late 14th century)

This period in the history of swordmaking features extraordinarily long *tachi* measuring over 90.9 cm (3 *shaku*). *Tantō* were also made in larger

measurements formed in the *hira-zukuri* or ridgeless style. Many of those very long *tachi* were later shortened to be *katana*.

Representative artisans: Nobukuni and Hasebe Kunishige in Yamashiro; Kaneuji in Mino; Kanemitsu and Chōgi in Bizen; Tsugunao and Tsuguyoshi in Bitchū; and Samonji in Chikuzen.

### 6 Early Muromachi period (Late 14th-late 15th centuries)

The early Kamakura style swordmaking was revived and many kinds of *tantō* and *wakizashi* were manufactured accordingly.

Representative artisans: Nobukuni in Yamashiro; Motimitsu and Yasumitsu in Bizen (Ōei Bizen school).

### 7 Late Muromachi period (Mid-16th century)

In these warlike decades the predominant form of combat changed from cavalry action to massive infantry troop action. A type of sword called *uchigatana* worn cutting edge down through a sash wound around the hip gained popularity. After the civil wars in the Ōnin and Bunmei eras in the middle of the 15th century, local battles broke out in many parts of the land and necessitated massive supplies of practical blades called *kazu-uchi-mono*. To discriminate high quality custom-made works from those less carefully made ones, the former are called *chamon-uchi*. The Bizen and Mino provinces were the two major producers of such factory-made swords.

Representative artisans: Heianjō Nagayoshi in Yamashiro; Muramasa in Ise; Kanesada and Kanemoto in Mino; Sukesada, Katsumitsu and Kiyomitsu in Bizen.

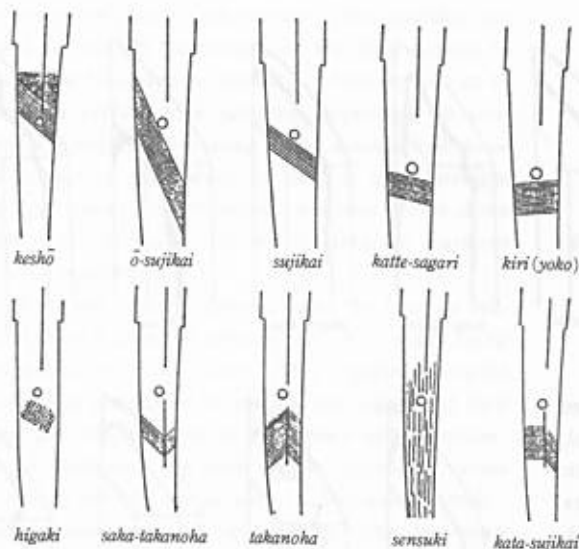
### 8 Momoyama Period (1573-1614)

In the history of *Nippontō* the swords manufactured prior to the Keichō era (1596-1614), which falls at the very end of the Momoyama period (Toyotomi Hideyoshi's era), are called *Kotō* (old swords), while those made afterwards up to the Bunka-Bunsei eras in the Tokugawa Shogunate Regime or Edo period are called *Shintō* or *Arami* (new swords).

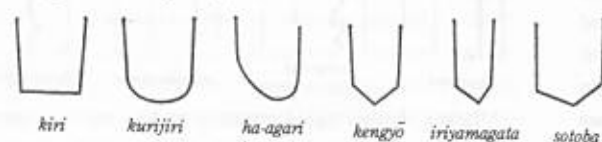
Swordsmiths gathered around castle towns built by provincial feudal warlords. Development in transportation facilitated the supply of steel and other materials for manufacturing swords. It was this time when imported steel called *Nanban-tetsu* was added to the line of materials by some smiths. Representative artisans: Umetada Myōju and Horikawa Kunihiro in Yamashiro; Nanki Shigekuni, Echizen Yasutsugu, and Hankei in Edo; Tadayoshi in Hizen.

### 9 Edo period (From Kan'ei and Shōhō eras, 1624-43,

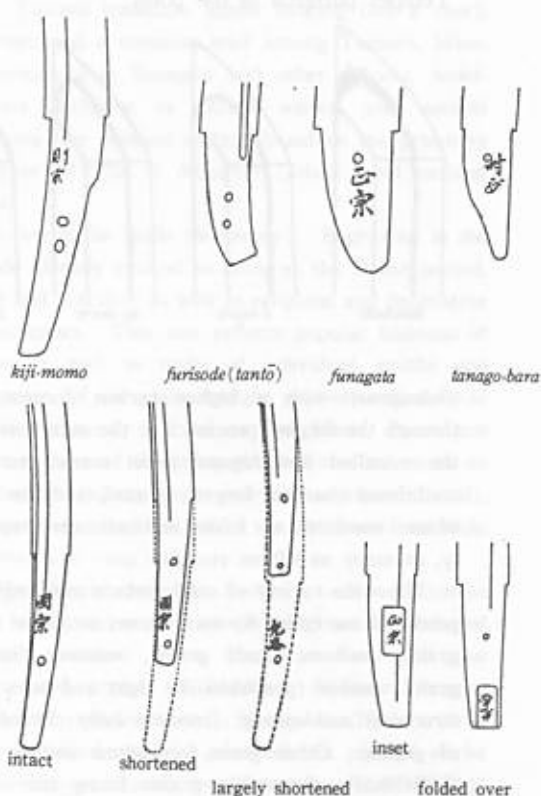
## Filemarkings



## Shapes of tang's tip



## Shapes of tang



1644-47, up to the beginning of the Bunka era, 1804)

The peace-prevalent atmosphere of the society was reflected in the novel, flamboyant temper patterns innovated during this period.

Representative artisans: Nagasone Kotetsu in Edo; Izumi-no-kami Kunisada, Inoue Shinkai, Echizen-no-kami Sukehiro, Ōmi-no-kami Sukenao and Ikkanshi Tadatsuna in Osaka; Sendai Kunikane in Mutsu; Mondonoshō Masakiyo in Satsuma.

### 10 End of the Shogunate (Bakumatsu) period

The swords made since the Bunka and Bunsei eras are called either *Shin-shintō* (neo-new swords) or *Fukkotō* (revival swords). Suishinshi Masahide from Uzen Yamagata and Nankai Tarō Chōson from Tosa produced swords in Edo in their attempts to reproduce the styles and craftsmanship of *Kotō* days. Taikei Naotane was Suishinshi's top student. Minamoto Kiyomaro from Shinshū also tried to reproduce swords in the Sōshū and Mino Shizu styles in the wake of the revival movement and gained a high reputation for his outstanding accomplishment.

### 11 Since the Meiji era (1868 -)

With the arrival of modern times, a decree to prohibit the wearing of swords deprived swordsmiths of their profession.

In 1906, however, the Imperial government as-

signed two contemporary master swordsmiths to the positions called the Imperial Arts and Crafts Artisans and thus the technology of swordmaking was assured of its survival. The present day sword world has since become prosperous and many artisans are involved in sword manufacture and interested in mastery of higher skills.

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