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. 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The term katana also includes those swords which were originally made as tachi but were shortened by suriage.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 Shinsho period by a group of swordsmiths in the Hizen province, and also those produced in the Shin-shinsho 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: Japanese swords are made in various styles such as hira-zukuri (flat, ridgeless), shinogi-zukuri (longitudinally ridged closer to the back), kirihazu-zukuri (longitudinally ridged closer to the cutting edge), and moroha-zukuri (double-edged).

Forging: 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 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), nashi (pear-skin-like tight and even grain structure) and ayagashi (concentrically curved lines of grains). Other grain formations include ji-nie (individually discernible grains lining the overall grain patterns on the steel surface or jī), chikei (short, curvy lines of nie grains), and utsuri (misty darkish areas in the jī 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. Kunichi Tawara (1872-1918), Japanese metallurgist, that the mixture of very hard steel component called marten-site 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), ichinokke (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 Sōshi 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
Temper patterns in chronological order

Late Heian-early Kamakura period
komidare
in suguha
ko-choji
in suguha
ko-gunome
in suguha
juba-choji
obi-choji
kawazuko-choji
saka-choji

Late Kamakura period
gunome
kabubari-gunome
kataochi-gunome
notare
nie-dominant notare
hitatsura
widely spaced gunome mixed with choji

Early Momoyama-Mid Edo period
widely spaced complex gunome
sanbonzugi
Kanehusa-midare
hakoba
sudareba
zujuha
toranba

Various grain activities in ji and ha

Mid Edo period
Common to all times
kengata-choji
niori-tight suguha
niori-deep suguha
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 tsuchidori is done, some blades are meant to have a plain straight temper pattern called suguhha, whereas others come out with diversified kinds of irregular patterns called midareba.

When the coating material dries, the blade is re-heated 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 suguhha represents varied kinds of straight hamon such as hiro-suguhha (wide), hoso-suguhha (narrow), as well as tight and thick straight lines. Midareba includes ko-midare (compact), choji (clove shape), jakachoji (multiple choji), kawazukchoji (tadpole-shaped choji), gunome (zigzag), katauchi-genome (oblique zigzag), sanbonsugi (three-cedar clumps), notare (wavy undulation), tiroan (surging waves), hitaisuna (all over the face), and sudareba (rattan blind).

Point (boshi): This term refers to the entire point section above the yokote (transverse ridge) which is also called kisaki. 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 boshi are given names such as o-maru (large semicircle), ko-maru (small semi-circle), midare-komi (irregular continuation), yakitsume (all the way up to the back), jizou (stone figure’s head), and kaen (flame).

Filemarks in the tang (yasurime): Yasurime are filemarkings to finish the surface of blade handle called nashgo (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. O-sujikai is a more emphasized sujikai characterizing Aoe and Samoni schools in the Kotot 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, Naminohiria in Satsuma and other schools, kesho-yasuri exclusive in Shinto works, and sensuki looking like scraped surface found on the primitive non-curved type of Nippono (jōkotō) and earliest Kotot.

Engraving in the blade (korimono): 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 bōhi most commonly carved in the blade, there are varied ways of designing the bottom end, such as kakudome (square end), marudome (rounded end), kabinagashi (tapered to a point), and kakiōshi (through to tang’s tip).

The objects carved in Kotot works in addition to the hi or grooves were mostly religious and included Bonji (Sanskrit), ken (dagger), Fudomyō (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 NAMMYOHORENGEKYO and so on. In the Shinto ages, the carving increased its decorative importance, and popular motifs included tsura-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 kirihaku-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; Sadatsu and Yasutsugu in Bitchū; Miike Tenta Mitsuoyo in Chikugo; Yukihiro in Bungo; and Naminohira Yukiyasu in Satsuma.

3 Middle Kamakura period (Mid-12th 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 Kunitoki and Rai Kunitoshi of the Rai school in Yamashiro; Senjuin, Hōshō, Shirakake, Tegai and Taema in Yamato; Kunimune, Sukezane, and Shintō Kunimitsu in Sagami (Sōshū); Ichimonji Yoshifusa, Sukefusa, Osafune Mitsutada, Nagamitsu, Hatakeda Morii and Sanemori, and Katayama Ichimonji Norifusa in Bizen; and Suketsugu 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, nioi-structured temper patterns developed to a more nio-dominant structure. Gorō-nyūdō Masamune in Sōshū was a master smith who perfected the so-called ni-deki style of swordmaking.

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

5 Nambokuchō 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 Chōji 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; Morimitsu and Yasumitsu in Bizen (Oei 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 chūmon-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; Suksesada, Katsumitsu and Kiyomitsu in Bizen.

8 Momoyama Period (1573–1614)

In the history of Nippōntō 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,
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 Kuniyada, Inoue Shinkai, Echizen-no-kami Sukehiro, Omi-no-kami Sukenao and Ikkanishi 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 Fukhoto (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. Tajikei 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-