

*Japanese Sword Society of the United States, Inc.*

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VOLUME 43 NO 1



February, 2011



# NEWSLETTER

The Official Publication of the Japanese Sword Society of the U.S., Inc.  
Annual Membership \$40 U.S., \$45 Canada and \$60 Foreign.

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**Real-life kantei of swords, Part 4: Kawari Deki swords**

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**Introduction:** Three previous articles (**Coutinho (2010 a)**, **Coutinho (2010 b)** and **Coutinho (2010 c)**) discussed some problems encountered when examining unusual swords. This article will examine another problem encountered when confronted with the question of ascertaining the quality and authenticity of two swords apparently made by the same sword smith but that are *kawari deki*, that is, works that are not made in the usual style of the artist. Figure 2 shows the two swords examined in this article.

Figure 1 has *oshigata* of a six swords by *Kazusa no Suke Kaneshige*. These reference swords (RS) are swords referred in the text as RS1 to RS6. The first two swords were published in the *Token Bijutsu* and the remaining three swords were published in the book by Sato Kazan (**Kazan 2005**)

Their measurements follow. All measurements are in cm. The degree of taper (DT) is something new for collectors to consider.

The number DT is calculated as follows:

$$DT = \{ (Moto Haba - Saki Haba) / Moto Haba \} \times 100.$$

This number is an important consideration that will be discussed later in this article.

RS1 -Nagasa 75.6; Sori 1.36 ; Moto Haba 2.9; Saki Haba 1.8;DT = 37%

RS2- Nagasa 71.0;Sori 1.2 ; Moto Haba 3.0; Saki haba 1.9 ; DT = 36%

RS3- Nagasa 69.7 ;Sori 1.5; Moto Haba 2.8; Saki Haba 1.85 DT = 34%

RS4-Nagasa 57.3 ;Sori 1.1:Moto Haba 2.8; Saki Haba 1.85; DT = 34%

RS5-Nagasa 75.8; Sori 1.5; Moto Haba 2.8; Saki Haba 1.80; DT = 36%

The reference sword 2 is dated eighth month of the *Kanbun* era and reference sword 4 has a cutting testing inscription dated from the fourth month of the *Manji* era. All these swords will help us to make a judgment about two other swords.

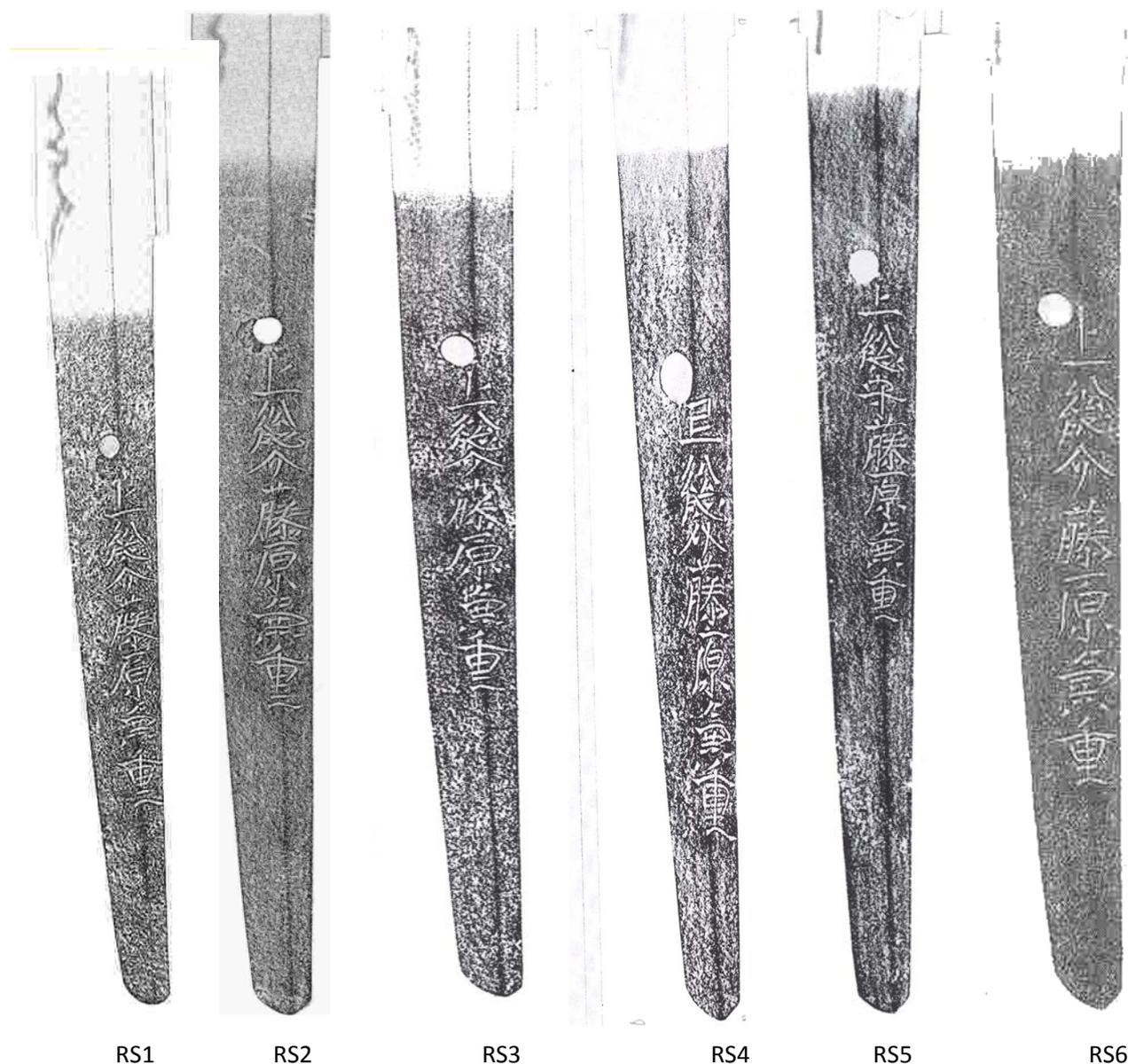


Figure 1

### Sword 1

Sword 1, the one in the left side of the figure 2, has the following measurements. (All the measurements are given in centimeters.)

Nagasa 54.5;	Sori 1.1;	Moto Haba 3.2;	Saki Haba 2.2;
Moto Kasane 0.6;	Saki Kasane 0.5;	Nakago Nagasa 15;	
Kissaki Nagasa 3.5;	Degree of taper (DT) = 31%		

The shapes of the swords are visually very different. Statistical calculations shown in Appendix 1 indicate that the two swords are so different statistically that they should not



Figure 2

have been made by the same smith. This article takes a contrary viewpoint – that is that they were indeed made by the same smith.

The workmanship can be described as follows:

**Kitae:** Compact *ko-itame hada* covered with *nie*

**Hamon:** *ko nie* based *chu suguha* with wide *nioiguchi*. There are many *ashi* in the *ha*. The *boshi* is *komaru* with a small *kaeri*.

**Mei:** *Kazusa (no) Suke Fujiwara Kaneshige*.

The *nakago* in figure 3 is enlarged so that one can see the details of the calligraphic style of the signature.



Figure 3

To show that this sword is a *kawari deki* one can take as his typical work, the description found in the article by Tanobe Michihiro (**Tanobe 1984**). According to this article

"*Kazusa Suke Kaneshige* came right in the midst of the *Kanbun-Shinto* period." So the "overall shape of *Kasusa -no-Suke* [swords] represent a typical *Kanbum Shinto* characterized by a shallow *sori* [around 1.3 cm], marked difference in the widths of the *moto* and *saki* and a rather compact medium size *kissaki*."

The workmanship of the swords is described in the article by Tanobe Michihiro (**Tanobe 1984**) as follows:

"*Kazusa-no-suke's* style of workmanship is producing *ji-gane* of finely tight *ko-itame* admirably covered with *ji-nie*."

This *hada* is what is observed in this sword. However the *hamon*, as described above, is *suguha* covered with *nie* and is not typical of this sword smith. This is not considered as a serious discrepancy. Almost all smiths produced *hamon* in *suguha* once in a while. However, this discrepancy becomes more serious when one considers the shape of this sword. The degree of tapering (DT) is only 31% and the sword has a shape that looks much more like a *Keicho Shinto* shape than a *Kanbun Shinto* shape (see Figure 2). So, if this sword were not signed, one would have difficulty in attributing it to *Kazusa Suke Fujiwara Kaneshige*. Fortunately the signature was considered good by experts and so this sword may be just a *kawari deki*. Mathematically the fact that the DT of Sword 1 is only 31% is very significant. In fact, judging only by this characteristic (the parameter DT), sword 1 could not have been produced by this smith accidentally (see appendix 1).

## Sword 2

The Sword 2 is the one show in the right side of Figure 2 and in Figure 4. It has the following measurements. (All the measurements are given in centimeters.)

*Nagasa* 55.54;      *Sori* 1.56;      *Moto Haba* 2.98;  
*Saki Haba* 1.92;      *Moto Kasane* 0.7;  
*Saki Kasane* 0.5;      *Nakago Nagasa* 15;  
*Kissaki Nagasa* 3.5;      DT= 35%



Figure 4

The *sori* of this sword is large (1.56 cm) and its shape is considerable different from Sword 1 as can be seen in Figure 2. One might think that this sword is *kawari deki* because it's big *sori*. This is however not so. In fact the swords produced by this smith when he was older (from the *Jokyo* (1684-1668) to the *Genroku* era (1688-1704)) are more curved with a *sori* of around 2 cm. (See **Kubo (2008)** for a complete explanation.)

As an example, here are the measurements of a sword dated fifth month of *Jokyo* (**Kubo (2008)**).

RS6 -Nagasa 71.36; Sori 1.97; Moto Haba 2.9; Saki Haba 1.9 ; DT = 34%

So the shape of sword 2 is compatible with the swords that *Kaneshige* made after *Jokyo*. The *hada* is usual. This sword is a *kawari deki* because the *hamon* is totally different from the usual *hamon* of *Kazusa no Suke*. It is a *notare*-like *hamon* in *nie deki* with a deep *nioiguchi*. In the *ha*, there is much *sunagashi* and *ashi*. The *boshi* is deep, *nioi guchi* with *ara nie*, It looks more like the *hamon* of a *Satsuma* sword than his usual *hamon*. So if this sword were unsigned it would be difficult to attribute it to *Kaneshige*.

In figures 3 and figure 4 one can compare the *nakago* of swords 1 and 2. Consider figure 1 for the *nakago* of references swords.

One can note that the shape of the tip of the *nakago* of this smith varies a little among the examples presented. The swords with *nakago* that are *ha-agiri kurijiri* are in swords made when he was young. The ones with a more *kengyo*-like shape are from his swords when he was older. Sword 1 has a *ha-agari kurijiri* and sword 2 has a more *kengyo* like tip.

The style of the signatures of this smith also varied with age. Consider the reference signatures in Figure 1 to facilitate following the explanation about how his signature changed with time given by (**Tanobe 1984**):

"His early inscriptions were executed with thin chisels creating a quaint *reisho* style [see **Self 1987**) and the [URL http://japanesetranslator.co.uk/typesetting/japanese-fonts/](http://japanesetranslator.co.uk/typesetting/japanese-fonts/)] similar to *Izumi-no-Kami Kaneshige's*. However when the era of *Kanbun* came closer to its end, the writing changed to *kaisho* (a new style of *kanji* writing developed from *reisho*; consisting of straight lines closest to the present printed style) executed by thicker chisels."

According to references above the *kaisho* (**block script**)

"is a brushed calligraphy style consisting of discrete strokes drawn with various hooks and flourishes."

One can note that in sword 1 the individual stokes are almost invisible while in sword 2 the strokes are clearly visible. So this is further evidence that sword 1 is older than sword 2.

However there are calligraphic differences between the signatures of sword 1 and sword 2. The sword 2 has a NBTHK Tokubetsu Hozon paper but sword 1 is not completely certified. So it is not inconceivable that Sword 1 is *gimei*. The detail that bothers most in the signature is in the *kanji wara* (in *Fujiwara*) from which there is a small hook misplaced. However, from the variations in the details of the references swords and considering that this may be an earlier work, one will most probably consider that the sword is *shin mei* (genuine) but *kawari deki*. The reader can note that there are differences in all the *oshigata* in the references swords.

## Conclusions

This article considers two very different swords presumably made by the same smith and both different from his usual work – two *kawari deki*. The first sword is *kawari deki* mainly because of its shape. The shape looks too old for this smith. The second sword has its shape compatible with his work when he was older, but the *hamon* is totally different.

It is possible that here are two sword made by the same smith in very different stages of his life. The first sword would correspond to one of his first works. The second to a sword made when he was older.

## APPENDIX 1

Modern statistics can be used to determine whether or not an object belongs to a given group. The same techniques are used to determine if a new medicine is effective. In order to apply the methods something measurable in the swords was compared. In the seven swords degree of tapering (DT) was considered. This property is important in *kantei* as it is used to determine the era of sword manufacture.

Sword 1 has a DT of only 31%. On the other hand, the average DT of the remaining seven swords is 35.23%. Note that the DT of the references swords are not equal. They vary from sword to sword. Then, if one assumes, that this variation is random, that is, due to natural small variations appearing during the manufacture of the swords, one may ask if the DT of 31% could be accidental. The answer is given by calculating what is called a z-score and the answer in this case is that the probability that sword 1 has a DT of 31% by accident (that is by chance) is practically nil. (The z score is 8.8.) Of course the workmanship of a sword smith changes according to fashion. So what one can conclude is that sword 1 is very different from the others because it was done when he was young and it was fashionable to make swords with a small DT.

For further information on the z-score and how to use it see both:

<http://changingminds.org/explanations/research/statistics/z-score.htm> and

<http://en.wikipedia.org/wiki/Z-test>

### Acknowledgments

Thanks are offered to Laerte and Eduardo Ottaiano, Sylvia and Barry Hennick and Iracene Boccia for helping with this article. The author is solely responsible for the opinions expressed in the above article.

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