

RADIOCARBON DATING OF *KOHITSUGIRE* CALLIGRAPHIES ATTRIBUTED TO ASUKAI MASATSUNE AND THE PERIODS OF ORIGIN OF *GENJI MONOGATARI EMAKI* AND *BAN-DAINAGON EKOTOBA*

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ABSTRACT. *Genji monogatari emaki* and *Ban-dainagon ekotoba* are Japanese national treasures. Although the periods in which they were painted have not been accurately determined, radiocarbon dating cannot be applied to these priceless artifacts because of the destructive nature of ^{14}C dating. In this study, the periods of their origin were determined by ^{14}C dating the *kohitsugire* calligraphy. *Kohitsugire* are ancient paper sheets containing graceful calligraphy. They originally were part of ancient manuscripts. Two *kohitsugire* named *Imaki-gire* and *Kingin-kirihaku-wakanroeshu-gire* are written in the same style as *Genji monogatari emaki* and *Ban-dainagon ekotoba*. Although *Imaki-gire* and *Kingin-kirihaku-wakanroeshu-gire* had been attributed to Asukai Masatsune (AD 1170–1221) on the basis of the *kiwamefuda* certificates, recent calligraphical and paleographical studies suggest that they are genuine handwritings of Fujiwara no Norinaga (AD 1109–1180?). We applied ^{14}C dating by accelerator mass spectrometry (AMS) to *Imaki-gire* and *Kingin-kirihaku-wakanroeshu-gire*. The calibrated ^{14}C ages of both the *kohitsugire* indicated timing close to the peak of Fujiwara no Norinaga's career as a calligraphist. Based on the associations between the dated texts and the ^{14}C results, it is concluded that the *Genji monogatari emaki* and *Ban-dainagon ekotoba* paintings could have been created in the middle of 12th century.

INTRODUCTION

Emakimono is a style of ancient Japanese painting and literature. They are illustrated novels, religious texts, or dictionaries painted on long scrolls of Japanese paper. One of the most famous *emakimono* is *Genji monogatari emaki*, which depicts Murasaki Shikibu's novel *Tale of Genji* through colorful paintings and graceful calligraphy. Although it originally consisted of about 10 scrolls, only 19 painted sheets and 37 calligraphy sheets have survived. *Tale of Genji* is a novel written 1000 yr ago, in about AD 1008, by Lady Murasaki Shikibu, and is one of the oldest novels in the world. It consists of 54 chapters recounting the gallant life of Hikaru Genji, an imaginary prince, his "son" Kaoru, and his grandson Niunomiya. Therefore, *Genji monogatari emaki* is also a vital historical resource depicting the culture of the court nobles in the middle Heian period (roughly corresponding to the 10th–11th centuries). *Ban-dainagon ekotoba* is also a famous *emakimono*; it deals with the *Otenmon no hen* incident that took place in AD 866. The incident began with the torching of the *Otenmon* gate. Although Tomo no Yoshio (Ban-dainagon) accused Minamoto no Yoshio of being the arsonist, Fujiwara no Yoshifusa framed his political rival Tomo no Yoshio for the fires. In the end, Tomo no Yoshio and his son were condemned and sent into exile. *Otenmon no hen*, which cast a great shadow over the Tomo family, was part of a series of political ploys through which the Fujiwara family eliminated a number of rival families in order to establish their permanent reign.

Genji monogatari emaki, *Ban-dainagon ekotoba*, and *Shigisan-engi emaki* are commonly regarded as the 3 greatest and oldest examples of *emakimono*. They therefore have been designated as Japanese national treasures. However, their periods of origin have not been accurately determined. The paintings of *Genji monogatari emaki* have been traditionally attributed to Fujiwara no Takayoshi (before AD 1174). The calligraphy of *Genji monogatari emaki* can be classified into 5 groups on the basis of their styles (Yotsutsuji 2004); therefore, it may be inferred that 5 calligraphists worked on *Genji monogatari emaki*. Some calligraphy sheets have small rectangular certificates identifying the

writer. According to these certificates, called *kiwamefuda*, the calligraphy in chapters 36–40 has been attributed to Jakuren (AD 1143?–1202) or Fujiwara no Korefusa (AD 1030–1096), and that in chapters 44 and 45 is attributed to Asukai Masatsune (AD 1170–1221). The calligraphy in *Ban-dainagon ekotoba* has also been attributed to Asukai Masatsune. As the dates of the birth and death of those writers differ, not all of these attributions can possibly be accurate. However, paleographical and calligraphical studies, which are independent of *kiwamefuda* certificates, indicate that the calligraphies in chapters 44 and 45 of *Genji monogatari emaki* and *Ban-dainagon ekotoba* are the work of the same calligraphist (Itoh 1939; Komatsu 1961).

The purpose of this study is to determine by radiocarbon dating the periods in which these 2 *emakimono* were created. However, the method could not be applied directly to these national treasures because of the destructive nature of the analysis. Therefore, we used *kohitsugire* fragments written by the same calligraphist who wrote the calligraphies of these *emakimono* as samples for ^{14}C dating.

Kohitsugire are ancient paper fragments or sheets containing graceful calligraphy of Japanese *kana* syllabary or Chinese characters. They originally comprised pages of ancient manuscripts. Since the tea ceremony achieved great popularity by the end of the 16th century, old manuscripts had been separated as *kohitsugire* and mounted on hanging scrolls to appreciate their antique calligraphy in the tea houses. Therefore, very few ancient manuscripts written before the 14th century are found in complete form, but a large quantity of *kohitsugire* fragments have survived.

Kohitsugire calligraphies separated from a single book or series have an identical handwriting, size, and margin; they are referred to by generic names. *Kohitsugire* sheets named *Imaki-gire* were separated from the ancient manuscripts of *Kokinwakashu* (the first of 21 imperial anthologies of *waka* poems; the original was compiled in AD 905). *Kingin-kirihaku-wakanroeishu-gire* are *kohitsugire* works from the ancient manuscripts of *Wakanroeishu* (an anthology of *waka* and Chinese poems; the original was compiled around AD 1012 or 1018). The calligraphies of *Imaki-gire* and *Kingin-kirihaku-wakanroeishu-gire* are identical to the handwriting in *Genji monogatari emaki* (chapters 44 and 45) and *Ban-dainagon ekotoba* (Itoh 1939; Komatsu 1961). They also have *kiwamefuda* certificates that identify Asukai Masatsune as the writer. According to the certificates, they were written at the peak of his career as a calligraphist, namely, at the end of the 12th century or in the early 13th century. However, paleographical study shows that there are some *kohitsugire* sheets whose calligraphical styles are incompatible with the descriptions of the *kiwamefuda* certificates. For example, *Chotori-shitae-gire*, which has the *kiwamefuda* certificate of Empress Komyo (AD 701–760), and *Genryaku-kohon-manyoshu-gire*, which has the *kiwamefuda* certificate of Prince Munetaka (AD 1242–1274) were both written in the 11th century. Some examples of unreliable *kiwamefuda* were also found by recent ^{14}C dating of other *kohitsugire* (Oda et al. 2003, 2007).

With regard to the 8 calligraphical groups attributed to Asukai Masatsune—*Imaki-gire*, *Kingin-kirihaku-wakanroeishu-gire*, *Hase-gire*, *Gosenwakashu*'s manuscript *Futaarayamajinjahozohon*, and the calligraphies of *Genji monogatari emaki* (chapters 44 and 45), *Ban-dainagon ekotoba*, *Nenchugyoji emaki* (unavailable at present), and *Hikohodeminomikoto emaki* (unavailable at present)—calligraphical and paleographical studies concluded a notable theory that they cannot be recognized as works of Asukai Masatsune, but those of Fujiwara no Norinaga (AD 1109–1180?) on the basis of a comparison with their original handwriting (Itoh 1939; Komatsu 1961).

Therefore, we measured the ^{14}C ages of *Imaki-gire* and *Kingin-kirihaku-wakanroeishu-gire* to clarify whether they were written by Asukai Masatsune or Fujiwara no Norinaga and determine the periods of the origin of *Genji monogatari emaki* and *Ban-dainagon ekotoba*.

SAMPLES

The 6 *kohitsugire* sheets listed in Table 1 were measured by accelerator mass spectrometry (AMS). The *Imaki-gire* subjected to ¹⁴C dating (sample 2–1; Figure 1, left) was a sheet of Japanese paper (25.7 × 15.8 cm) made from *kozo* (mulberry bushes, *Broussonetia kazinoki* × *Broussonetia papyrifera*). It has 2 *waka* poems recorded in *Kokinwakashu* Volume 17. The *Kingin-kirihaku-wakanroeshu-gire* (sample 2–2; Figure 1, right) is a sheet of Japanese paper (26.5 × 9.4 cm) made from *kozo* and *ganpi* (daphne bushes, *Diplomorpha sikokiana*), and decorated with small pieces of gold and silver foils. The calligraphy is a part of *Wakanroeshu*, Volume 1, chapter “Autumn.” Besides the *kohitsugire* attributed to Asukai Masatsune, *kohitsugire* with known ages were measured as standard samples used to compare the results. *Todaiji-gire* (sample 1–1) is a fragment from an ancient manuscript entitled *Sanpo-ekotoba*, written in AD 1120. *Ruiju-utaawase-gire* (sample 1–2) is from a manuscript of *Nijukanbon-ruiju-utaawase*, written in AD 1126 or 1127. These 2 *kohitsugire* precede *Imaki-gire* and *Kingin-kirihaku-wakanroeshu-gire* in terms of written age. *Kohitsugire* sheets corresponding to the time after the peak in Asukai Masatsune’s career were also analyzed. *Maruyama-gire* (sample 3–1) belongs to a manuscript of the 8th imperial anthology entitled *Shin-kokinwakashu*. It was written in the middle Kamakura period (roughly corresponding to the period from the middle to the late 13th century). *Kasuga-gire* (sample 3–2) belongs to a manuscript entitled *Ononomiya-saneyori-shu* and was written in the early Kamakura period (early 13th century).

Table 1 *Kohitsugire* calligraphies measured by AMS ¹⁴C dating.

Sample nr	Name of <i>kohitsugire</i>	Date written
<i>Kohitsugire</i> of known age (written in the AD 1120s)		
1–1	<i>Todaiji-gire</i>	AD 1120
1–2	<i>Ruiju-utaawase-gire</i>	AD 1126–1127
<i>Kohitsugire</i> attributed to Asukai Masatsune (AD 1170–1221)		
2–1	<i>Imaki-gire</i>	
2–2	<i>Kingin-kirihaku-wakanroeshu-gire</i>	
<i>Kohitsugire</i> of known age (written in the 13th century AD)		
3–1	<i>Maruyama-gire</i>	Middle or late 13th century
3–2	<i>Kasuga-gire</i>	Early 13th century

METHODS

Japanese paper samples of 12–47 mg were cut from the margins of the *kohitsugire*. *Kohitsugire* are commonly mounted on other paper sheets to form a lining. Samples were soaked in distilled water to peel the surface sheet of calligraphy from the mounts. The surface sheets were first washed in distilled water with an ultrasonic cleaner, then treated with 1.2N HCl and 1.2N NaOH solutions on a hot plate (each step was repeated several times for 2–3 hr at 60–70 °C). After retreating with 1.2N HCl and rinsing with distilled water (at 60–70 °C), the samples were dried in a vacuum desiccator. These samples were combusted using CuO (at 850 °C, 3 hr) to form CO₂, and the purified CO₂ was reduced to graphite by H₂ in the presence of Fe powder catalyst (at 650 °C, 6 hr) at Paleo Labo Co., Ltd. (Japan). Samples were then measured by AMS (CAMS-500, NEC, USA) at Paleo Labo Co.

RESULTS

Table 2 gives ¹⁴C ages of the *kohitsugire* calligraphies with 1- and 2-σ error ranges. ¹⁴C dates were calibrated to calendar years using the IntCal04 calibration curve (Reimer et al. 2004). In the column containing the calibrated ¹⁴C ages, numbers inside parentheses are calibrated values of the mean ¹⁴C age, and numbers outside parentheses indicate the error ranges. Calibrated ages are also given in Figure 2.

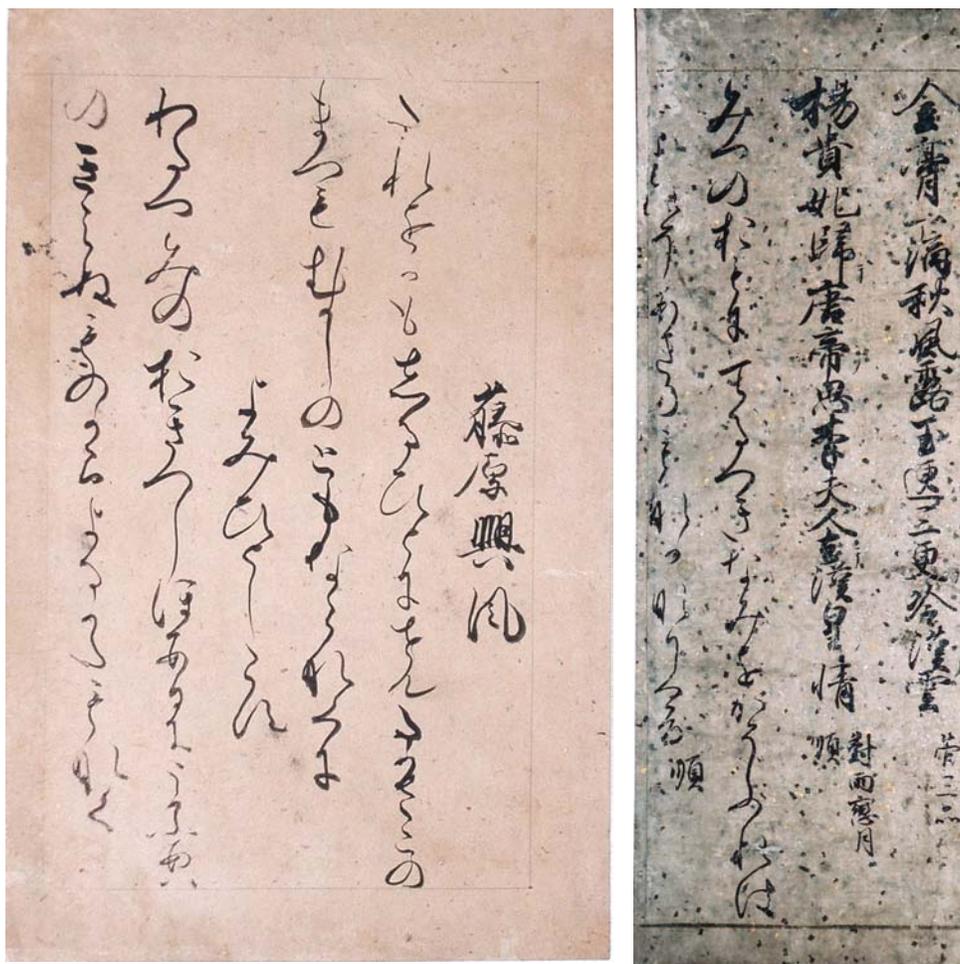


Figure 1 Kohitsugire calligraphies attributed to Asukai Masatsune: *Imaki-gire* (left) and *Kingin-kirihaku-wakanro-ishu-gire* (right).

Table 2 Results of ^{14}C dating on *kohitsugire* calligraphies.

Sample nr	^{14}C age (BP)	Calibrated ^{14}C age (cal AD)
1-1	919 \pm 23 (1 σ) \pm 45 (2 σ)	1042 (1053, 1079) 1106; 1117 () 1145; 1145 (1153) 1159 1030 (1053, 1079, 1153) 1176
1-2	946 \pm 22 (1 σ) \pm 43 (2 σ)	1030 (1042) 1052; 1081 (1107, 1117) 1128; 1134 () 1152 1023 (1042, 1107, 1117) 1158
2-1	928 \pm 22 (1 σ) \pm 44 (2 σ)	1038 (1049, 1084, 1124, 1137, 1151) 1157 1028 (1049, 1084, 1124, 1137, 1151) 1165
2-2	916 \pm 21 (1 σ) \pm 42 (2 σ)	1044 (1054, 1078) 1099, 1119 () 1142, 1147 (1153) 1160 1032 (1054, 1078, 1153) 1177
3-1	791 \pm 22 (1 σ) \pm 43 (2 σ)	1221 (1257) 1265 1215 (1257) 1274
3-2	808 \pm 20 (1 σ) \pm 41 (2 σ)	1217 (1223) 1259 1209 (1223) 1267

DISCUSSION

On the basis of the *kiwamefuda* certificates, *Imaki-gire*, *Kingin-kirihaku-wakanroeshu-gire*, the calligraphy in chapters 44 and 45 of *Genji monogatari emaki*, and that of *Ban-dainagon ekotoba* had been identified as works of Asukai Masatsune. If *kiwamefuda* certificates are reliable, *Genji monogatari emaki* and *Ban-dainagon ekotoba* were created during the peak of Asukai Masatsune's career, i.e. the early 13th century. However, the calibrated ¹⁴C ages of 2 *kohitsugire* attributed to Asukai Masatsune appear to range from the mid-11th to the mid-12th century. For reasons mentioned below, the older ages are not due to the "old wood effect." Japanese paper was made from the branches of *kozo*, *ganpi*, and *mitsumata* (daphne bushes, *Edgeworthia chrysantha*). Old paper sheets are not generally used for calligraphy because it cannot absorb Indian ink, and it is unsuitable for elegant handwriting. Therefore, the time gap due to tree rings and storage can be estimated at several years. The ¹⁴C dating of ancient Japanese documents and sutras of known ages also demonstrated that the calibrated ¹⁴C ages correspond to the paleographical ages (Oda et al. 2000, 2003). As shown in Figure 2, ¹⁴C ages of *kohitsugire* of known age (in the 1120s and 13th century) support the proposal that Japanese paper samples are suitable for ¹⁴C dating of old calligraphic documents.

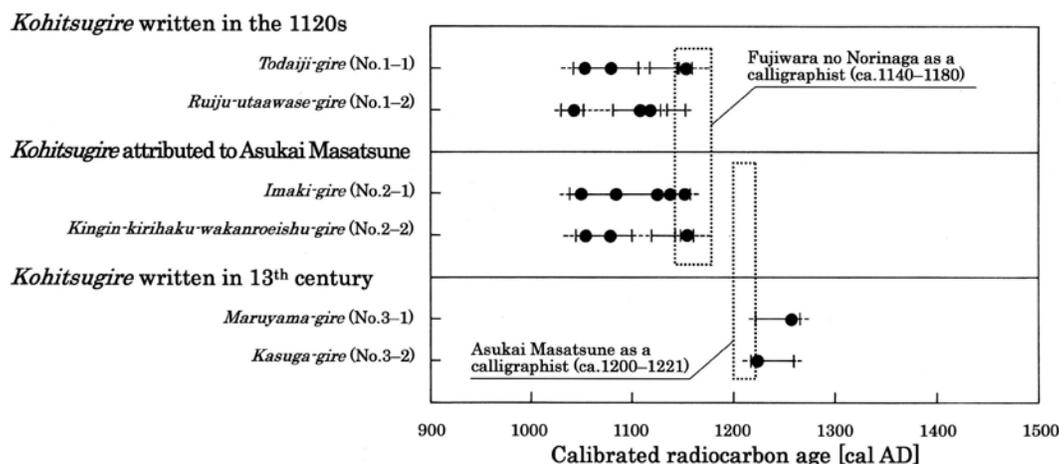


Figure 2 Results of ¹⁴C dating on *kohitsugire* calligraphies. Solid error bars indicate 1 σ; dotted bars, 2 σ.

Therefore, the calibrated ¹⁴C ages show that *Imaki-gire* and *Kingin-kirihaku-wakanroeshu-gire* were written between the mid-11th and mid-12th century. Although the error ranges are large because the calibration curve from the 11th to the 12th century shows an age plateau, the calibrated ¹⁴C ages of *Imaki-gire* and *Kingin-kirihaku-wakanroeshu-gire* include periods in which Fujiwara no Norinaga's career flourished as a calligraphist. The results support the previous theory based on calligraphical and paleographical studies. On the basis of the theory that the calligraphies of *Genji monogatari emaki* (chapters 44 and 45), *Ban-dainagon ekotoba*, *Imaki-gire*, and *Kingin-kirihaku-wakanroeshu-gire* were written by the same calligraphist, it is concluded that the creation of *Genji monogatari emaki* and *Ban-dainagon ekotoba* dates back to the 12th century. In particular, the date could possibly be reduced to the peak of Fujiwara no Norinaga's career (mid-12th century).

The ages of ancient books and documents are generally deduced from paleographical investigations. However, it is difficult to determine written ages conclusively for *kohitsugire* with only a few calligraphical lines and uncertain *kiwamefuda* certificates. If their written ages are determined, *kohitsugire* fragments might prove to be valuable resources. In this study, the ¹⁴C ages of *kohitsugire* were

measured and the dated *kohitsugire* were used to determine the periods of origin of 2 national treasures that could not be subjected to destructive analyses. We therefore consider that ^{14}C dating of *kohitsugire* will lead to the rediscovery of their value and provide a number of new resources for history, literature, paleography, and bibliography.

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