

**DOCUMENTARY EVIDENCE FOR THE APPARITION OF A COMET IN LATE 593 AND EARLY 594**

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**Introduction:** This presentation is an attempt to establish a *prima facie* case for two apparitions of a comet in the sixth century. This comet may also have made apparitions in the seventh century and later.

**The primary documents:** Two medieval Japanese documents mention the apparition of what was apparently a comet in late 593 and early 594 AD. (It was different from the comet of January 595, No. 361 in Hasegawa's list [1].) The most important of these documents is the *Genpei Josuiki*, an anonymously compiled history of the Genpei Wars (1180-1185). One episode within this history mentions the apparition of a "guest-star" [2] in connection with an appearance of the goddess Benzaiten under one of her Shinto names. This episode as a whole has obviously passed through the hands of a number of chroniclers and undergone a mythologizing process to some extent. However, certain elements, including the dates and the description of the comet, appear to have survived largely unchanged, and these elements are the subject of this presentation.

According to the narrative, the appearance of the guest-star began around 10 December 593 and lasted until at least 26 January 594. The narrative also contains a description of the guest-star. Although the description does contain a few mythological elements, it clearly is a description of a comet, not a nova, and the description covers features corresponding to the coma, the nucleus, and the tail, including striations in the tail and other fine details. The presence of the mythological elements is probably the reason why the episode has not previously been recognized as containing a description of a comet.

**Evidence from other sources:** Secondly, there is documentary evidence from Chinese and Korean sources that either suggests the apparition of a comet in late 593 and early 594 or is consistent with an apparition. While not conclusive by itself, this supplementary evidence is at least consistent with the primary Japanese documentary evidence.

**The 1st sighting of the comet:** The appearance of Benzaiten (i.e., the apparition of the comet) in late 593 and early 594 was actually the second appearance of Benzaiten in the 6th century.

The first sighting of Benzaiten was in early June of 552 at Enoshima. In 1047, the Buddhist monk Kokei wrote a temple history that covered the first appear-

ance of Benzaiten in 552 and described the phenomena accompanying her appearance. A translation of this document is available on the Internet [3]. Kokei describes the appearance of the goddess Benzaiten "above the clouds." Since the second appearance of the goddess in late 593 and early 594 was apparently a comet sighting, the first sighting in mid-552 was probably an earlier sighting of the same comet. Subsequently the bright goddess descended onto an island, accompanied by a sound. This phenomenon may have been the descent of a fireball.

**Apparent Periodicity:** The interval between the first sighting of Benzaiten (the comet) at Enoshima in 552 and the sightings of its second apparition from near modern Hiroshima and Osaka in late 593 and early 594 was approximately 41.5 years. Japanese historical sources report the sighting of another comet in February 635 and another on 29 August 676 (Nos. 380 and 396 in Hasegawa's list). The latter appearance may have been identified by a Buddhist priest as another appearance of Benzaiten; however, the documentary evidence is not conclusive. In any case, the interval between the sighting of late 593/early 594 and that of 635 is 41 years and two months (or 41 years and four months, according to a separate record), and the interval from the sighting of 635 to that of 676 is 41 years and 6 months (or 41 years and four months).

It is worth emphasizing that this presentation only points out an apparent periodicity in the sightings of 635 and 676. Whether there is real periodicity here remains to be determined.

**Conclusions:** Documentary evidence from Japanese and other sources indicates the apparition of a comet in late 593 and early 594, and one primary source provides a description of the comet. This comet was distinct from the comet of January 595. This comet also made a previous apparition in mid-552 and may have made two apparitions in the seventh century and later; however, its periodicity is as yet only apparent and not necessarily real. The apparition of late 593 and early 594 marks the first time that an appearance/manifestation of a Buddhist deity (in this instance Benzaiten, the Japanese name of the Indian deity Sarasvati) has been clearly identified as the apparition of a comet. There may be more such instances. Moreover, early Buddhist monks may have been somewhat aware of the periodicity of comets.

**References:**

- [1] Hasegawa, I. (1980) Catalogue of Ancient and Naked-Eye Comets, *Vistas in Astronomy*, Vol. 24, pp. 59-102. [2] The *Genpei Josuiki* mentions one other sighting of a guest-star, in Aug 642. This is No. 384 in Hasegawa's catalog of comets and novae. Ho Peng-Yoke (Ancient and Mediaeval Observations of Comets and Novae in Chinese Sources, *Vistas in Astronomy*, 5, 1962, 127-225) and Gary W. Kronk (*Cometography: A Catalog of Comets*, Cambridge University Press, 1999, 104) list this object as a guest-star. None of the three catalogs above use the *Genpei Josuiki* as a source. [3] Juhl R. A. (2003) *A Study of the Enoshima Engi*, (<http://www2.gol.com/users/terukoj/TranslationSeg-2.html>).