

# The Geographical Significance of the Tomb Inside the Kitora Burial Mound in Asuka, Nara Prefecture

**Simon Potter**

## **Introduction**

The stone tomb inside the Kitora Burial Mound (キトラ古墳, *Kitora Kofun*, ca. 700 A.D.) in the southernmost part of the village of Asuka, central Nara prefecture, has been in and out of the news during the last sixteen years and has earned a reputation for being a monument of high culture toward the end of the Asuka Period (538–710) of Japanese history. During the exhibition of its artifacts at the Tokyo National Museum in April and May 2014 (Bunka-chō et al. 2014) there were long queues outside the exhibition hall, and Japanese dignitaries who had viewing sessions were Crown Prince Naruhito and Prime Minister Abe Shinzō, evidence on the one hand of the popularity attained through previous and contemporaneous media coverage and, on the other, of the cultural significance at the national level of what was inside the tomb. Other than the notorious mold which invaded the tomb while the archeological research was being done, most of the attention paid to Kitora has focused on its colorful murals, especially that of Suzaku or Shujaku (朱雀, “Red Bird” among other possible translations), but the tomb also contained a rather impressive star chart on its ceiling, some objects that were buried with the deceased and had not been taken by robbers at an unknown time in the past, and some remains of human bone and teeth. As suggested by many of the monographs listed in the scholarly book prepared for sale during the exhibition in Tokyo and thereafter (Bunka-chō et al. 2014: 131–133), the murals have been studied both as objects of visual art and for their spatiotemporal symbolism, while the star chart has been analyzed in regard to its value for the history of East Asian astronomy, hence the present article adds to this by evaluating the murals and star chart in a geographical context, as if to argue that Kitora deserves a place within the history of geography. In so doing, it points out that (1) the two sets of murals are topographically oriented (one for

the cardinal directions, the other for a twelvefold breakdown of space and time), (2) the star chart was derived from another that was made for a terrestrial latitude (apparently for a location in the central part of the Korean peninsula) and therefore is as geographical as it is celestial, and (3) the art and science bear witness to the diffusion of high culture from the Korean peninsula and – given the notable migration from the peninsula (especially Baekje) to Japan in the mid 600s – suggest that the unidentified person buried in the tomb was more likely “Korean” than “Japanese.”

### The Two Sets of Murals

Along the four walls inside the rectangular tomb were two sets of murals, the upper set comprising four paintings of creatures symbolizing the cardinal directions, and the lower set being of the twelve animals or horary signs of the so-called “Chinese zodiac.” In terms of physical measurement, the lengths of the two north-to-south walls of the tomb are approximately 2.4 meters (i.e. tomb length), the lengths of the two west-to-east walls are approximately 1.04 meters (i.e. tomb width), and the height of the tomb from its floor to its ceiling is 1.24 meters (Bunka-chō et al. 2014: 28). From these measurements, it can be deduced that neither the tomb nor its paintings are very large, something which may also be said of the conical burial mound itself – approximately 3.3 meters high and 13.8 meters in diameter at the base (e.g. Izumimori 2001: 15).

The upper set of murals comprises the four “tutelary gods” (conventionally, as in Unno (1994: 353) and Miyajima (1994: 579)) or “spirit-beasts” (from the Chinese characters 神 (*kami*, spirit) and 獸 (*kemono*, beast) in the Japanese word 神獸, *shinjū*; noted in Potter 2001: 96) that symbolize north, east, south, and west as well as – in the same order – winter, spring, summer, and autumn. These guardian deities may be traced to ancient Chinese cosmology and, clockwise from north, are known in Japanese as Genbu (玄武, Black Warrior(s), a tortoise and a snake intertwined), Seiryū (青龍, Blue [Green] Dragon), Suzaku (朱雀, Red Bird), and Byakko (白虎, White Tiger). The approximate measurements for the spirit-beasts inside Kitora are 32.7 × 43 centimeters for Genbu, 51 × 49 centimeters for Seiryū, 22.5 × 51.5 for Suzaku, and 56 × 55.5 for Byakko (Bunka-chō et al. 2014: 42, 44, 38, 40); all were colored, with hues of red and gray being conspicuous, although it must be said that Seiryū was in sufficiently poor condition to be nearly unrecognizable.

Below the pictures of the spirit-beasts was another set of murals, of which five were sufficiently recognizable to be able to deduce that they belonged to the set of twelve animals with spatial and temporal associations in Chinese cosmology and that there would have been three on each wall. Based on the range of heights (13.9 to 29 centimeters) and widths (9.5 to 19 centimeters) given for the four which are explained in Bunka-chō et al. (2014: 50–53), these murals were rather smaller than those of the spirit-beasts, and judging from the extant parts in red, this set was also colored. The pictures come across as depicting people standing upright, wearing a reasonably elaborate robe, and holding a staff or something such like; instead of a human head, however, each has that of a different animal as if to suggest that the people were wearing masks or that the animals had been personified. The five which have been identified are said to have heads of a mouse (or rat), cow (or ox), tiger, horse, and dog, the first two being on the northern wall and the other three being respectively on the eastern, southern, and western walls (Bunka-chō et al. 2014: 50–53, 82). Assuming that the entire set existed, the clockwise sequence would have been this: pig (or boar), mouse (or rat), and cow (or ox) on the northern wall; tiger, rabbit, and dragon on the eastern wall; snake, horse, and sheep (or goat) on the southern wall; and monkey, cockerel (or bird), and dog along the western wall. In terms of space, these animals denote narrower directions in terms of degrees covered (30° each) than the spirit-beasts (90° each), the pig being for north-north-west (i.e., clockwise from due north, at 315° to 345°), the mouse for straight north (345° to 15°, i.e. straddling the 0°/360° point that is north), the cow for north-north-east (15° to 45°), the tiger for east-north-east (45° to 75°), and so on until getting to the dog for west-north-west (285° to 315°); in terms of time, by today's reckoning, they represent two-hour blocks such that the pig is for 21h00 to 23h00, the mouse for 23h00 to 1h00 (i.e. straddling midnight), the cow for 1h00 to 3h00, and so on until the dog for 19h00 to 21h00. Given the location of the ancient Chinese polities, there is also a synthesis of space and time in these animals: the sun rose in the east between 5h00 and 7h00 (rabbit) and set in the west between 17h00 and 19h00 (cockerel), and the midday sun was always due south (horse).

Both sets of murals, then, have spatiotemporal geographical connotations: the four spirit-beasts or guardian deities represent the cardinal directions and the general mid-latitude seasons, while the twelve personified animals represent smaller ranges of spatial direction and their corresponding two hours which follow the diurnal path of the sun. From a cultural perspective, both sets have a Chinese origin and have

been used throughout the Chinese cultural sphere, with the twelve animals being better known today because of their continued use as annual markers in a sixty-year astrological cycle (hence their being considered as symbols of the “Chinese zodiac”), and both sets of animals would have been known and used for purposes related to geomancy and astrology in China, the Korean peninsula, and Japan at the time that the Kitora tomb was constructed. The murals inside Kitora therefore serve as a cultural reference and provide tangible evidence of the cosmological symbolism which had spread from the continental mainland to the political center of seventh-century Japan, and tombs in general appear to have been one means for preserving artifacts of high culture. In regard to the set of the four spirit-beasts inside Kitora, there is already sufficient archeological evidence from the nearby Takamatsuzuka Burial Mound (高松塚古墳, *Takamatsuzuka Kofun*, ca. 700 A.D., about a kilometer north of Kitora) – although Suzaku had been destroyed when the tomb was robbed at some unknown point in time (see, e.g., Asuka-Mura Kyōiku Iinkai Bunkazaika 2011) – and several tombs in Pyeongyang and Nampo in Korea (e.g. Jeon 2012: 111–122; Chōsen Minshushugi Jinmin Kyōwakoku ... 1979: 72–73, 77, 82–83, 88–89, 92–93, 96) to suggest a connection to tomb ornamentation in the ancient kingdom of Goguryeo (37 B.C. to 668 A.D.) that was located roughly in the northern half of the Korean peninsula and the eastern part of what used to be called Manchuria. Given contemporary knowledge of artifacts in East Asian tombs, however, what remains of the set of the “zodiacal” animals in Kitora is unique in that no other such set has been discovered in a tomb, something which was noted when the research team began investigating them after the tiger was discerned on the eastern wall (Yomiuri Shimbun 2002).

### **The Star Chart on the Ceiling**

Although the murals – and especially that of Suzaku because the one inside Takamatsuzuka had been destroyed long before archeological research was conducted – have generated the most excitement in the attention given to Kitora, it would seem that the star chart that was engraved into its ceiling is the most important discovery. Miyajima Kazuhiko, the specialist in East Asian astronomy who was in the research team and whose analysis of the star chart established its scientific pedigree, put it this way in his monograph on Japanese celestial cartography shortly after the

original, photograph-based research on Kitora had been done: “The celestial diagram inside the Kitora Burial Mound is not merely ... a celestial diagram that is drawn inside a burial mound, [but] ... as a star map with [an] orthodox form of covering the spacious area of the heavens ..., it can be called the oldest extant in the world” (Miyajima 1999: 63; translation from Potter 2001: 89–90). It is worth qualifying this assessment, based on further information about fragments of ancient celestial cartography in the same monograph (Miyajima 1999: 63; translated in Potter 2001: 90) and elsewhere (notably in various chapters in Harley and Woodward 1987, 1992, 1994), to read that the Kitora chart is the oldest known extant star map which is more or less complete. Terminology is also important in this regard, as Miyajima used three Japanese words with distinct meanings throughout the monograph – *tenmonzu* (天文図), *seishōzu* (星象図), and *seizu* (星図) – which have been translated respectively as “celestial diagram” (implies “a product of, basically, mechanical draftsmanship ... about the sky or heavens”), “diagram of images from stars” (“such an artifact shows constellations and/or [lunar] lodges, and even other celestial phenomena, but does not relate them to a potential terrestrial location of observation”), and “star map” or “star chart” (a diagram which “provide[s] a reference system and might thus be considered a scientific enterprise”) (Potter 2001: 91–92). The celestial diagram inside Kitora qualifies as both a *tenmonzu*, on the grounds of the generic nature of the word, and a *seizu* on the specific grounds given subsequently; in contrast, the square *tenmonzu* on the ceiling of the contemporaneous Takamatsuzuka tomb qualifies as a *seishōzu* because it does not have any of the circles mentioned in the next paragraph and thereby cannot be connected to a terrestrial latitude.

Centered on the ceiling of the tomb, the Kitora star chart is circular with two smaller circles tangent to its east and west, with part of the perimeter and the smaller circles being on the slightly downward sloping flanks that connect the completely horizontal part of the ceiling with the eastern and western walls. The smaller circles measure approximately 5.3 centimeters in diameter and symbolize the sun and the moon (Bunka-chō et al. 2014: 46); that for the sun was covered in gold leaf and placed to the east, an artistic expression of the brilliance of the sun and a scientific reference to where it rises each day, and that for the moon was covered in silver leaf and placed to the west, again an artistic expression of appearance as well as a scientific reference to the part of the sky in which the moon visibly begins its monthly cycle as a waxing crescent. More important, though, are the three concentric circles and an offset fourth which were chiseled into the stone and colored in red; although

their ratios are not precise and the fourth circle is offset in a wrong direction, they demonstrate that the Kitora star chart was a work of natural science and, because the ratios can be used to establish (an) approximate latitude(s), qualifies as a *seizu*. The innermost concentric circle is for “constant visibility” (16.8 centimeters in diameter) in which are found the circumpolar stars (those that never set below the horizon at the place of observation), the central concentric circle is the celestial equator (40.3 centimeters in diameter), the outermost concentric circle is for “constant invisibility” (60.6 centimeters in diameter) and designates the furthest horizon of visible stars at the place of observation, and the offset circle is the plane of the ecliptic (40.5 centimeters in diameter) (Bunka-chō et al. 2014: 46); in Japanese these circles are respectively called *naiki* (内軌, inner circle), *ten no sekidō* (天の赤道, equator of the heavens [literally, “red road of the heavens”]), *gaiki* (外軌, outer circle), and *kōdō* (黄道, ecliptic [literally, “yellow road”]). When analyzed as a set, the concentric circles and the offset ecliptic indicate that the Kitora star chart was made according to the principles of the zenithal (or azimuthal) equidistant projection, although the ecliptic should be somewhat oblate rather than circular.

There are mistakes in how the circles are portrayed – the ecliptic is circular and offset to the northwest rather than the northeast, and proportionately one of the concentric circles is the wrong size – but they were done well enough to suggest that a genuine scientific star chart had served as the model. As for the ecliptic, its being a circle of roughly the same size as the equator was not uncommon in East Asian celestial cartography and it might have had something to do with the mechanics of using a drawing compass to prepare the map (Miyajima 1999: 57–58; translated in Potter 2001: 85); furthermore, by being offset to the northwest, the apparent path of the sun around the earth has been flipped into a mirror image, resulting most importantly in the vernal and autumnal equinoxes being placed incorrectly vis-à-vis the constellations which are also shown (and are discussed briefly later in this section). The size of the concentric circles relative to each other can be used to calculate the latitude at which a star chart is valid, and in the case of the Kitora chart three possibilities exist based on which two circles are considered to be the correct size, meaning that the third has to be corrected so that the distance between the circle of constant visibility and the celestial equator is the same as that between the celestial equator and the circle of constant invisibility. Based on the information given in Renshaw and Ihara (2015 (in the section “Kitora Kofun,” dated 2002)), the equation for calculating the latitude is  $rcv/L = re/90$ , being that the ratio of the radius ( $r$ ) of

the circle of constant visibility ( $cv$ ) over the latitude of observation ( $L$ ) is to equal the ratio of the radius ( $r$ ) of the celestial equator ( $e$ ) over ninety (i.e. the number of degrees from the equator to the pole). As of 2002, Renshaw and Ihara (2015) had used this formula to arrive at “38.15” (=  $38^{\circ}09'$ ), which is close to the original value of “approximately 38.4 degrees” (roughly  $38^{\circ}24'$ ) calculated by Miyajima (1999: 59; translated in Potter 2001: 86), and Miyajima proposed that the model for the Kitora star chart was another which had been made for Pyeongyang on the grounds that it was the capital of the kingdom of Goguryeo from 427 to 668 A.D. and lies at the latitude of  $39^{\circ}01'$ , 37 minutes north of his calculated latitude and 52 of that by Renshaw and Ihara. For some reason, it was not pointed out that Wiryeseong, the first capital (18 B.C. to 475 A.D.) of the kingdom of Baekje, was situated at  $37^{\circ}32'$  – in present-day Seoul – and was thus only 37 to 52 minutes due south of the estimated latitudes, coincidentally the same range as that for Pyeongyang.

These early calculations and what might be called the “Pyeongyang hypothesis” may, however, be challenged on two grounds. One is that they were based on the assumption that the ratio of the circles of constant visibility and the equator is correct, and that the circle of constant invisibility was drawn smaller than it should be so that it essentially would fit onto the flat (non-sloping) part of the ceiling, and the other is that the original approximate diameters of 18, 42.5, and 64 centimeters have been replaced by those mentioned previously, that is 16.8, 40.3, and 60.6 centimeters which would have been calculated after researchers could come into physical contact with the star chart (Bunka-chō et al. 2014: 46). By calculating with the latter set of numbers (specifically 16.8 and 40.3 or, rather, their radii of 8.4 and 20.15), under the same original assumption as Miyajima (1999) and with the same formula as given in Renshaw and Ihara (2015), the result comes to 37.52 degrees or  $37^{\circ}31'$ , which is a very close fit for Wiryeseong. There are, however, two other assumptions which ought to be taken into account – the ratio of the circles of constant visibility and constant invisibility is correct (and the equator is too small), and the ratio of the circles for the equator and constant invisibility is correct (and the circle of constant visibility is too large) – and calculations made from them lead to different latitudes. Using the current diameters and making the required adjustments, the approximate latitudes obtained are  $39.07$  ( $39^{\circ}04'$ ) when constant visibility and constant invisibility are assumed to be correct and  $44.66$  ( $44^{\circ}40'$ ) when the equator and constant invisibility are assumed to be correct; the first coincides with Pyeongyang, but the second is at a latitude north of present-day Chángchūn ( $43^{\circ}54'$ ) in the Chinese

province of Jílín and would have been in a frontier area, not related to a Korean or Chinese cultural center. It would seem, then, that Wiryeseong and Pyeongyang are both reasonable candidates for what was supposed to be the terrestrial location for the star chart inside Kitora.

Besides the four circles, the Kitora star chart also includes many constellations that were depicted through stars covered in gold leaf and connected by red lines. Among those within the circle of constant visibility are two constellations that are known in Japanese as *Hokkyoku Gosei* (北極五星, Five Stars of the North Pole) and *Hokuto* (北斗, Ladle of the North); the former, usually comprising five stars, has six inside Kitora, while the latter has seven stars and corresponds with the “Big Dipper” of Western astronomy. Other constellations are found throughout the chart, although the northeastern quadrant does not have many which are extant because of damage to the ceiling. Despite there being problems of accuracy and, in some cases, misplacement, the constellations can be identified with those used in traditional Chinese astronomy; examples include *Gunshi* (軍市, Army Town), *Bunshō* (文昌, Written Prosperity), and *Taibien* (太微垣, Big Faint Fence). One set of constellations which deserves special mention are the twenty eight “lunar lodges” which mark the monthly path of the moon; twenty five have been located and, because of the damage to the ceiling which makes identification difficult, the remaining three have been located with question (Bunka-chō et al. 2014: 46–47).

As for determining what the Kitora star chart was modeled on, nothing conclusive has been established. It is, however, worth noting that when analyzing the Kitora star chart after it was discovered via photography in 1998, Miyajima (1999: 59) included in the materials which he studied the *Cheonsang Yeolcha Bunya ji Do* (天象列次分野之図, Diagram of the Lines and Areas of Heavenly Images [i.e. the lunar lodges and other constellations], 1395–96), a Korean star map engraved in stone early in the Joseon Dynasty (1389–1910) and based on a rubbing from an earlier celestial map – apparently Chinese – that was also engraved on stone and kept in Pyeongyang until being sunk in the Daedong River around 670 (Stephenson 1994: 556). There is hence a suspicion that the *Cheonsang Yeolcha Bunya ji Do* and the Kitora star chart could have both been modeled on the sunken map, although Miyajima was not convinced that they were; the idea, though, that the *Cheonsang Yeolcha Bunya ji Do* could have been a detailed reproduction and the Kitora chart a simplified version need not be discounted. Among the problems in determining this heritage one way or the other are notable defects within the Kitora chart: besides the incorrect propor-

tions of the concentric circles and the misplaced plane of the ecliptic, the stars and constellations are drawn too large, the constellations are therefore not all correctly displayed vis-à-vis each other, it is not clear where exactly the celestial north pole is, and the stars as a whole might be based on a Chinese star catalog from the first century B.C. (Miyajima 1999: 56–60; translated in Potter 2001: 84–88). In such a light, it is possible that the Kitora chart synthesized Chinese star data (for a Chinese location probably around 34° or 35°) with concentric circles for a Korean location further north, something that might very well have also been true for the star chart that was sunk in the Daedong around 670.

### **A Monument to Immigration from the Korean Peninsula**

That the murals and the star chart inside Kitora may be traced to immediate cultural diffusion from the Korean peninsula appears to be certain. Despite the lack of definitive proof through trustworthy official documents or such like, there is sufficient circumstantial evidence to support the theory that the art and science inside Kitora was of direct Korean provenance, with the intellectual paradigm for both going one step further to Chinese civilization. It is not important here to delve into the details that draw parallels with artifacts on the Korean peninsula and, further, a lineage to Chinese antiquity – to do so would, of course, require much more space than is usually allotted for an article in a scholarly journal – but salient pieces of information are provided to support the idea of a Korean provenance for Kitora as well as an argument that the person interred might very well have been originally from Baekje. Among this information are items of significance from the *Nihon Shoki* (日本書紀, Written Account of Japan) of 720 A.D., the first official history of Japan which provides plenty of evidence about the relationship of Asuka-Period Japan with the Korean peninsula and, notably, the role of Baekje in contributing to the intellectual development of Japan and being a source of migrants, including during the crucial decade of the 660s.

As the investigation into the interior of Kitora commenced in 1998, it was rather clear that there were similarities between it and the contemporaneous Takamatsuzuka Burial Mound, about one kilometer north and closer to the center of the settlement of Asuka, and that Kitora provided further evidence of the Korean influence on early Japanese art. Research into Takamatsuzuka started in 1972, and its murals of the

(three extant) *shinjū* and people in ceremonial costumes were traced in regard to content and style to Goguryeo tombs (compare, for example, the photographs in such publications as Asuka-Mura Kyōiku linkai Bunkazaika 2011, Chōsen Minshushugi Jinmin Kyōwakoku ... 1979, and Jeon 2012, as well as at United Nations ... 2005); this knowledge provided a basis for evaluating Kitora, which turned out to have significantly similar contents – murals of the *shinjū* and a celestial diagram – to suggest that the two tombs were somehow related to each other despite the minor differences in how the *shinjū* are portrayed, the differences of the celestial diagrams (circular and more detailed in Kitora, square in Takamatsuzuka), and the differences in content of the other murals (the twelve animals of the Chinese zodiac in Kitora, people in ceremonial clothing in Takamatsuzuka). In a sense, the tombs appear to be complements, with the cosmology (the *shinjū* and celestial diagrams) serving as a common denominator, while the costumed people of Takamatsuzuka provide an artistic link to the Korean peninsula and the star chart of Kitora provides a similar scientific link; this observation not only has been useful for trying to establish the intellectual heritage of both tombs, but it could also be useful for contemplating the possibility that the people who were interred in them were immediate relatives from the community of migrants from Baekje that settled in Yamato, as Japan was then known.

To pursue this idea, two published versions of the *Nihon Shoki* were consulted – one in which the text has been written in modern-day Japanese (Ujitani 1999) and, since readers of this article are expected to be (more) familiar with English, a translation which was done nearly 120 years ago but is still useful despite the different spellings (Aston 1985) – and plenty of circumstantial evidence was found. The salient points are that Baekje played an important role in the intellectual development of Yamato, migration from Baekje intensified during the troubled decade of the 660s, two immediate relatives of the last king of Baekje took refuge in Yamato and their deaths in 674 (a grandson) and 693 (a son) are recorded in the *Nihon Shoki*, and one of these relatives (the son) was the founder of the “King of Baekje” clan that was created late in the Asuka Period.

It is rather clear that the political and other cultural history of Asuka-Period Japan was existentially intertwined with the Korean peninsula, and a cursory read-through of the *Nihon Shoki* can lead a reader to wonder if Yamato was actually something like a fourth Korean kingdom that was dependent on its continental brethren for cultural paradigms and development, as had also been the case earlier

with the transmission of rice cultivation and the tomb-building culture. Not least among the cultural paradigms was Buddhism – introduced to Yamato via Baekje under King Seong (r. 523–554) and later promoted enthusiastically by the Japanese crown prince Shōtoku (574–622) – and there are many entries in the *Nihon Shoki* which provide insights into the crucial role that Baekje played in transmission of the religion and arts related to it. Notable examples include Seong having sent to Tennō (literally, “Heaven-Sovereign”) Kinmei (r. 539–571) “an image of Shaka Butsu [i.e. the Buddha] in gold and copper ... and a number of volumes of ‘Sutras’” in 552; King Wideok (r. 554–598) presented “a number of volumes of religious books, with an ascetic, a meditative monk, a nun, a reciter of mantras, a maker of Buddhist images, and a temple architect” to Tennō Bidatsu (r. 572–585) in 577; Gwalleuk, a Buddhist priest from Baekje, “presented by way of tribute books of Calendar-making, of Astronomy, and of Geography,” presumably to Tennō Suiko (r. 593–628) in 602; and an address delivered in 645 on behalf of Tennō Kōtoku (r. 645–654) to priests and nuns at Kudara-dera – a temple named after Baekje (“Kudara” in Japanese) and located approximately ten kilometers northwest of central Asuka today – which noted that “King [Seong] ... reverently transmitted the Law of Buddha to our great Yamato” in the thirteenth year of the reign of Tennō Kinmei, which is to say in 552 (respectively, as translated in Aston 1985: (II) 65, 96, 126, 202; for Japanese versions, see Ujitan 1999: (II) 35, 62, 90, 163). These citations not only reveal how Buddhism was disseminated from Baekje to the highest levels of Asuka Japan, but also demonstrate that Buddhism played a part in the transmission of cosmology (astronomy and geography, from which the disciplines of calendar-making, divination, and geomancy) and the visual arts (notably painting, sculpture, and architecture); a related event which is recorded in the *Nihon Shoki* was the foundation in 604 of the Kibumi (黄書) and Yamashiro (山背) schools of painters that specialized in Buddhist works (Aston 1985: (II) 133; Ujitan 1999: (II) 97), and the Kibumi have notably been linked to migrants from Goguryeo (e.g. Ueda ca. 1998: [6], Pak 2000: 32).

Such background information does not, of course, suffice to say that the Kitora and Takamatsuzuka tombs were necessarily linked to migrants from Baekje, whether in terms of who was commissioned to do the work or who was interred. However, the content of the murals in both tombs may be traced in terms of inspiration and style to Goguryeo, and the star map inside Kitora could have been based on one prepared for Pyeongyang or Wiryeseong, hence a question ought to be raised about whether

the tombs were built for influential migrants from the Korean peninsula, rather than for aristocratic Japanese. In this context, when perusing the *Nihon Shoki*, it became obvious that there are very good candidates in the two direct relatives of Uija (r. 641–660), the last king of Baekje, who are recorded as having died in 674 and 693: first Chang-seong (昌成, “Shōjō” in Japanese), a grandson, and then Seon-gwang (善光, “Zenkō” in Japanese), a son (Aston 1985: (II) 325, 411; Ujitani 1999: (II) 265, 337). Seon-gwang is recorded in the *Nihon Shoki* as having taken up residence in nearby Naniwa in 664 and, at the time of death and at least from 691, as having held the official rank of *shō-kō-shi* (正広肆) which was posthumously upgraded to *shō-kō-san* (正広参) (Aston 1985: (II) 282, 401, 411; Ujitani 1999: (II) 225, 328, 337); he was also the founder of the clan known as “Kudara no Konikishi” (百濟王, King of Baekje), so it would appear that he was the highest ranking person of Korean descent in or around Asuka for at least three decades in the latter half of the seventh century. If the Kitora and Takamatsuzuka tombs were indeed built for Seon-gwang and Chang-seong, the latter being the son of the former (Nihon no Myōji ... 2015), it would be interesting to determine who was interred in which one, so a bit of speculation is offered here to suggest that Kitora was built for Seon-gwang and, by default, that Takamatsuzuka was for Chang-seong. Crucial is the star chart inside Kitora which most likely was supposed to show the sky over the central part of the Korean peninsula and suggests that whoever decided to decorate the ceiling with it wanted a more accurate and more detailed version than what is in Takamatsuzuka; Seon-gwang had lived in Baekje and, although not having been the crown prince, would have had the greater vested interest in the Korean peninsula, something which might very well have been a factor in decorating the tomb with a more “mature” celestial diagram that was meant to provide a specific geographic context.

Finally, as if to suggest that there is a linguistic curiosity to support this idea, it ought to be noted that there is no authenticated explanation for the name “Kitora,” although there are two ideas which have been satisfactory enough to warrant being included in the book that was prepared for the exhibition at the Tokyo National Museum (Bunka-chō et al. 2014: 48). One is that *kitora* is a contraction of *kita ura* (北浦, north(ern) inlet), a reference to its location on the edge of a small valley to the north of a hill called Abeyama, and this appears to be an attempt to promote the hypothesis that an official by the name of Abe was buried in Kitora (see, e.g., Naoki 2007: 286, 292–294). The other is that *kitora* was coined by combining the Chinese characters for “turtle” (亀) and “tiger” (虎), in this case pronounced respectively as

*ki* and *tora*, because in the Kamakura Period (1185–1333) local people allegedly referred to it as the “Turtle-Tiger” tomb after being told by somebody who had looked through a hole which had been made in the southern wall during a robbery that the tomb had images of a turtle and a tiger (Bunka-chō et al. 2014: 48), which begs the question of why the image of a dragon did not make it into the legend and name of the tomb. Either way, what is interesting is that “Kitora” continues to be mainly written in the katakana script as キトラ (i.e. *ki-to-ra*) – as it is in the title for the exhibition catalog, which should send a strong message that the Chinese-character combinations are suspect – and this leads to a bit of speculation which is offered here. In the word “Kitora” is the consonant cluster “k-t-r” which can be changed, by vocalizing the “t”, to “k-d-r”; given that vowels tend to change more easily over time than do consonants, a linguistic argument might be put forward to argue that, rather than a contraction of *kita* and *ura* (as noted above), “Kitora” might be a corruption of “Kudara,” the usual Japanese pronunciation for the Korean place-name Baekje. Since, however, demonstrating this to be true would require having evidence of the name being used a long time ago, perhaps as early as when the tomb was built, it is best left as a hypothesis for future consideration.

## Conclusion

The work on the walls and ceiling of the Kitora tomb has a clear, well developed, and coordinated cosmographical theme, as if it were made to preserve a record of the state of contemporary knowledge and even to suggest that the person interred had something to do with that knowledge. On the walls are two sets of murals with spatial and temporal significance – the four spirit-beasts or guardian deities symbolize the cardinal directions and the seasons, while the twelve zodiacal animals depict more narrow directions and two-hour units of a day – and on the ceiling is a star map that, despite its inaccuracies and presumed synthesis of Chinese and Korean data, conveys such astronomical information as circumpolar stars and the relative distribution of constellations, as well as alludes to knowledge of the plane of the ecliptic and was probably modeled on another map that was prepared for a specific terrestrial latitude. Various factors point to the likelihood of the art and science inside Kitora being strongly related to the Korean community in Asuka-Period Japan: the intellectual foundations trace to Gwalleuk’s having given books on astronomy and

geography to the ruler of Yamato in 602 and to the creation of the Kibumi school of painting in 604, the murals of the four spirit-beasts have similarities with murals in tombs in Goguryeo, the star map appears to have had as its model another that had been prepared for a latitude in the central part of the Korean peninsula (perhaps the one which is recorded as having been sunk in the Daedong River in Pyeongyang), and throughout the seventh century people migrated from the Korean peninsula – notably from Baekje – and settled in Asuka, places nearby, and places further away on Honshū. Added to this is that among the migrants from the Korean peninsula – and certainly from the 660s, when the kingdom of Silla put an end to Baekje and Goguryeo – was Seon-gwang, a son of the last king of Baekje and the founder of the “King of Baekje” clan, who is recorded in the *Nihon Shoki* as having died in 693, around the time that the Kitora and Takamatsuzuka tombs are suspected as having been built. Although the *Nihon Shoki* does not provide details about his activities in Japan or even when he arrived, from the 660s at least Seon-gwang must have been the socially highest ranking migrant from the Korean peninsula and thereby considered the local personification of Baekje, a kingdom which had made significant cultural contributions to Asuka-Period Japan but which had been extinguished for over thirty years at the time of his death. By having been a royal figure, he might have played a role in patronizing or supporting the Korean migrants who were engaged in pictorial art, astronomy, and geomancy; if so, the murals and star map inside Kitora would have served as a symbolic gesture of appreciation, but this can only be offered as conjecture for the time being. That Kitora (like Takamatsuzuka) displays a heritage which can be traced to the seventh-century Korean kingdoms of Baekje and Goguryeo, however, seems rather well established, and given that its content is completely cosmographical, Kitora deserves a place within the history of East Asian geography.

### References\*

Akechi, M., uploader. 2008. Kitora Kofun [Kitora Burial Mound]. Bunka-chō and Nara Bunkazai Kenkyūjo [(National) Agency for Culture (Agency for Cultural Affairs) and Nara Cultural Assets Research Institute]. At <http://www.youtube.com/watch?v=WK3cAsqkTNs> [most recently accessed in May 2015].

Aston, W. G., trans. 1985. *Nihongi: Chronicles of Japan from the Earliest Times to A.D.*

The Geographical Significance of the Tomb Inside the Kitora Burial Mound in Asuka, Nara Prefecture 697, 2 vols. in one. Rutland (Vermont) and Tokyo: Charles E. Tuttle. [This translation of the *Nihon Shoki* was first published in 1896.]

Asuka Hozon Zaidan [Foundation for the Preservation of Asuka], publ. 2001. *Asuka Kaze* [Asuka Wind] 80: *Tokushū: Kitora Kofun & Man'yō no Sekai* [Features: The Kitora Burial Mound and the World of the *Man'yōshū* (Collection of 10,000 Leaves)]. Asuka: Asuka Hozon Zaidan.

Asuka Kokyō Kenshōkai [Society for Shedding Light on the Old Capital of Asuka], ed. 2006. *Kitora Kofun to Hekiga* [The Kitora Burial Mound and Murals]. Asuka: Asuka Kokyō Kenshōkai.

Asuka-Mura Kyōiku Iinkai Bunkazaika [Board of Education of Asuka Village, Section for Cultural Assets], ed. 2011. *Takamatsuzuka Kofun Hekiga* [The Murals of the Takamatsuzuka Burial Mound] / *Mural Painting[s] of [the] Takamatsuzuka Tumulus*. Asuka: Koto Asuka Hozon Zaidan, Takamatsuzuka Hekiga Kan.

Bunka-chō, Tōkyō Kokuritsu Hakubutsukan, Nara Bunkazai Kenkyūjo, and Asahi Shinbunsha [(National) Agency for Culture (Agency for Cultural Affairs), Tōkyō National Museum, Nara Cultural Assets Research Institute, and Asahi Newspaper Company], eds. 2014. *Tokubetsuten: Kitora Kofun Hekiga* [Special Exhibition: The Murals of the Kitora Burial Mound] / *Mural Paintings of the Kitora Tumulus*. Tōkyō: Asahi Shinbunsha.

Chon, H. C. 1997. Kitora Tomb Originates in Koguryo Murals. At [http://www1.korea-np.co.jp/pk/035th\\_issue/98032502.htm](http://www1.korea-np.co.jp/pk/035th_issue/98032502.htm) [most recently accessed in May 2015].

Chōsen Minshushugi Jinmin Kyōwakoku Bunka Hozon Shidōkyoku Shashinchō Henshūshitsu [Editorial Office for Books of Photographs in the Supervisory Department for Cultural Preservation of the Democratic People's Republic of Korea], ed. 1979. *Kōkuri Hekiga* [Goguryeo Murals]. [Pyeongyang]: Chōsen Chūō Rekishi Hakubutsukan. [This book is written in Japanese, so the Japanese (rather than the Korean) pronunciation of the Chinese characters for the bibliographic information has been used here.]

Chu, Y. H. 1990. *Kōkuri no Hekiga Kofun* [Burial Mounds with Murals in Goguryeo]. Ed. K. Arimitsu, trans. K. Nagashima. Tōkyō: Gakuseisha.

Covell, J. C., and Covell, A. 2009. *Korean Impact on Japanese Culture: Japan's Hidden History*. Seoul: Hollym.

Harley, J. B., and Woodward, D., eds. 1987. *The History of Cartography*. Volume 1: *Cartography in Prehistoric, Ancient, and Medieval Europe and the Mediterranean*. Chicago: University of Chicago Press.

Harley, J. B., and Woodward, D., eds. 1992. *The History of Cartography*. Volume 2, Book 1: *Cartography in the Traditional Islamic and South Asian Societies*. Chicago: University of Chicago Press.

Harley, J. B., and Woodward, D., eds. 1994. *The History of Cartography*. Volume 2, Book 2: *Cartography in the Traditional East and Southeast Asian Societies*. Chicago: University of Chicago Press.

Hong, W. 1994. *Paekche of Korea and the Origin of Yamato Japan*. Seoul: Kudara International.

Izumimori, K. 2001. Asuka Kitora Kofun no Richi to Naishichōsa no Shoken [Observations on the Location and Internal Exploration of the Kitora Burial Mound (in) Asuka]. In *Asuka Kaze* [Asuka Wind] 80, publ. Asuka Hozon Zaidan [Foundation for the Preservation of Asuka], 12–17. Asuka: Asuka Hozon Zaidan.

Jeon, H. T. 2012. *Goguryeo: In Search of Its Culture and History*. Seoul: Hollym.

Miyajima, K. 1994. Japanese Celestial Cartography before the Meiji Period. In *The History of Cartography*, ed. J. B. Harley and D. Woodward, 579–603. Chicago: University of Chicago Press.

Miyajima, K. 1999. Nihon no Koseizu to Higashi Ajia no Tenmongaku [Old Star Maps in Japan and Astronomy in East Asia]. *Jinbungakuhō* [Reports in the Humanities] 82: 45–99. [Published by the Research Institute for the Humanities (Jinbunkagaku Kenkyūjo) at Kyōto University.]

Nakayama, S. 1969. *A History of Japanese Astronomy: Chinese Background and Western Impact*. Cambridge (Massachusetts): Harvard University Press.

Naoki, K. 2007. *Asuka: Sono Hikari to Kage* [Asuka: Its Light and Shadows]. Tōkyō: Yoshikawa Kōbunkan.

Nihon no Myōji Nanasen Ketsu [Seven Thousand Distinguished Family Names of Japan]. 2015. At <http://www.myj7000.jp-biz.net/clan/03/03013.htm#002>. [No compiler or editor is

The Geographical Significance of the Tomb Inside the Kitora Burial Mound in Asuka, Nara Prefecture given for this website; most recently accessed in May 2015.]

Oh, M. S. 2013. *Exploring the National Museum of Korea*. Trans. S. Park, J. Yi, and Y. Kong. Seoul: Hollym.

Pak, C. M. 2000. *Nara no Naka no Chōsen: Aruite Shiru Chōsen to Nippon no Rekishi* [Korea within Nara: A History of Korea and Japan That is Learned from Walking Around]. Tōkyō: Akashi.

Park, C. 2008. *Astronomy: Traditional Korean Science*. Ed. J. Yeo, trans. Y. Cho and H. Park. Seoul: Ewha Womans University Press.

Potter, S. 2001. Professor K. Miyajima's Research on the Celestial Diagram inside the Tomb of the Kitora Burial Mound at Asuka, Nara Prefecture: From a Recent Japanese-Language Monograph on Old Japanese Star Maps. *Saitama Daigaku Kiyō: Kyōyōgakubu* [Journal of Saitama University: College of Liberal Arts] 37, 1: 81–106. [This is an annotated translation of selected material in Miyajima (1999: 52, 54–64, 99).]

Renshaw, S., and Ihara, S. 2015. Astronomy in Japan[:] Science, History, Culture. At <http://www2.gol.com/users/steve/jastro.html> [most recently accessed in May 2015].

Senda, M. 2001. *Asuka: Mizu no Ōchō* [Asuka: A Water Dynasty]. Tōkyō: Chūō Kōron.

Stephenson, F. R. 1994. Chinese and Korean Star Maps and Catalogs. In *The History of Cartography*, ed. J.B. Harley and D. Woodward, 511–578. Chicago: University of Chicago Press.

Ueda, M. ca. 1998. Ancient History Seminar: “[The] Kurotsuka [and] Kitora Mounded Tombs and East Asia.” At [http://www.asianmonth.com/prize/english/lecture/pdf/09\\_04.pdf](http://www.asianmonth.com/prize/english/lecture/pdf/09_04.pdf) [most recently accessed in May 2015].

Ujitani, T. 1999. *Nihon Shoki: Zengendaigoyaku* [Written Account of Japan: A Complete Translation into (the) Present-Day (Japanese) Language], 2 vols. Tōkyō: Kōdansha.

United Nations Educational, Scientific and Cultural Organization, publ. 2005. Preservation of the Koguryo Kingdom Tombs. At <http://whc.unesco.org/uploads/activities/documents/activity-275-1.pdf> [most recently accessed in May 2015].

Unno, K. 1994. Cartography in Japan. In *The History of Cartography*, ed. J. B. Harley and D. Woodward, 346–477. Chicago: University of Chicago Press.

Yomiuri Shimbun [Yomiuri Newspaper]. 2002. Tiger-Man Image Found in Tomb. *Daily Yomiuri* [newspaper], 23 January: 3.

\* This list of references includes materials which have not been cited in the article, but which are useful for their information, photographs, and/or insights; for a more lengthy bibliography, see Bunka-chō et al. (2014: 131–133). For readers who would like to see pictures of the murals and star map in the Kitora tomb, Akechi (2008) is recommended as a good start for viewing online, while Bunka-chō et al. (2014) is recommended as the best printed source.