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(In)tangible archaeology of colours: permanent marks on anthropomorphic *haniwa* and tattooing in Kofun-period Japan

Arqueologia (in)tangível das cores: marcas permanentes em *haniwa* antropomórficos e tatuagens no Japão do período Kofun

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Abstract

The aim of this paper is to understand the meaning and function of reddish pigments present on the surface of anthropomorphic *haniwa* of the Kofun period. In Japan, the practice of tattooing (*irezumi*), whose symbolic meaning has changed over time, can be traced back to the Jōmon period. Tattooing is generally considered an intangible cultural heritage (ICH): the transience of human bodies significantly contributes to the archaeological impermanence of this practice except in the case of artificial intervention or natural accidental preservation. The presence of reddish decorative motives on both the face and the body of *haniwa* raises many questions triggering diverse interpretative scenarios. *Haniwa* are terracotta figures, placed outside the mounded tombs as an integral part of the funerary rituals and religious practices of protohistoric Japan, and in this sense, they are considered valuable objects not only for reconstructing the burial rituals, but also for Kofun society.

KEYWORDS
Kofun Period
Haniwa
Irezumi
Archaeology of colours

Resumo

O objetivo deste ensaio é compreender o significado e a função dos pigmentos avermelhados presentes na superfície dos *haniwa* antropomórficos do período Kofun. No Japão, a prática da tatuagem (*irezumi*), cujo significado simbólico tem mudado ao longo do tempo, remonta ao período Jōmon. A tatuagem é geralmente considerada um património cultural imaterial: a transitoriedade dos corpos humanos contribui significativamente para a impermanência arqueológica desta prática, exceto em caso de intervenção artificial ou de preservação natural acidental. A presença de motivos decorativos avermelhados, tanto no rosto como no corpo dos *haniwa*, suscita muitas questões que permitem clarificar diversos cenários interpretativos. Os *haniwa* são figuras de terracota, colocadas no exterior dos túmulos, como parte integrante dos rituais funerários e das práticas religiosas do Japão proto-histórico e são considerados objectos valiosos para reconstruir, não só a arqueologia funerária, mas também a sociedade do período Kofun.

PALAVRAS-CHAVE
Período Kofun
Haniwa
Irezumi
Arqueologia das cores

Preliminary note

The aim of this paper is trying to understand the meaning and the function of the reddish pigments which are present on the surface, mainly the face, of anthropomorphic *haniwa* of Kofun-period Japan. *Haniwa* (埴輪), which literally means "clay cylinder" or "circle of clay", is a term used to identify a variety of earthenware funerary objects placed for ritual use on top of ancient [mounded] tombs (*kofun* 古墳). As Matsumoto Naoko [1] points out, the production of red and black pigments by grinding rocks (i.e. hematite and manganese dioxide) is known at least since the Upper Palaeolithic, while shells, animal teeth and ivory were used for manufacturing white colour. These colours were intentionally applied on a diversity of surfaces, which means that they should have acquired a decorative function and possibly a symbolic meaning. In the specific case of *haniwa* it was observed that some clay figurines bore red, white and/or black pigments. Although it is not clear what the meaning attributed to these pigments is, one can suggest that they were used for decorative, spiritual and/or protective purposes. The idea of red being protective could be in line with Kondo's theory, according to which the placement of *haniwa* in a circle on the tumulus could represent a way to prevent the spirit of the dead from wandering around [2, p. 173; 3, p.65]. Whether these pigments "can be interpreted as part of the tattooing practice, which is common in Japan since, at least, the Jōmon period", is a question that remains open.

This contribution is part of a larger project on *Haniwa: The religious practices and political landscape in Kofun period Japan* (in progress), which is investigating the relationships between religious practices and political landscape by analysing anthropomorphic *haniwa*. Taking as starting point Tanaka Masaki's theory according to which governance grew out of ritual [4, p. 149], one of the goals of this research is to better understand the characteristics and the function of the *haniwa* located on the *kofun* of the *Mounded Tomb Culture* (MTC) period, through an analysis of the relationship between archaeological heritage, landscape and written sources.

The Kofun period was not homogeneous in terms either of time or space. According to Koji Mizoguchi the chronology of the Kofun period is based on the combined typo-chronology of its pottery (i.e. *haji* (土師) and *sue* (須恵) wares and *haniwa*), the typo-chronology of the mounded tomb shapes and the grave good assemblages [4, p. 149].

The structure of the mounded tombs, of the prestige goods and of the *haniwa* did not only represent the power and position of the deceased, but was also representative of regional differences. Traditionally grouped in clusters (i.e. Kyushu, Izumo, Kibi, Kinki, Kanto and Gunma, *inter alia*), the Japanese archipelago cannot be culturally treated as an homogeneous reality, but rather as a complex network of individual policies that in time were engaged in strategic alliances or conflicts.

Figure 1 shows a map of Japan and Table 1 shows the"relative" chronology of the Kofun period. It is important to pinpoint that the Kofun period is marked not by the emergence of the mounded tumulus, but by the spread of this practice, which in fact had begun in the Yayoi period, during which burial mounds had sometimes been relatively large in size [3, p. 23].

Table 1. "Relative" chronology – Kofun-period [3, p. 34].

Phase description		Absolute dates
Yayoi VI/Shonai	Yayoi Kofun transition	c. CE 200-250
Kofun I, II, III, IV	Early Kofun	up to 400 CE
Kofun V, VI, VII, VIII	Middle Kofun	up to 500 CE
Kofun IX, X	Late	up to 600 CE
Kofun XI	Final	up to 645 CE
Asuka	(*Buddhism from 525 CE)	from 538 to 710

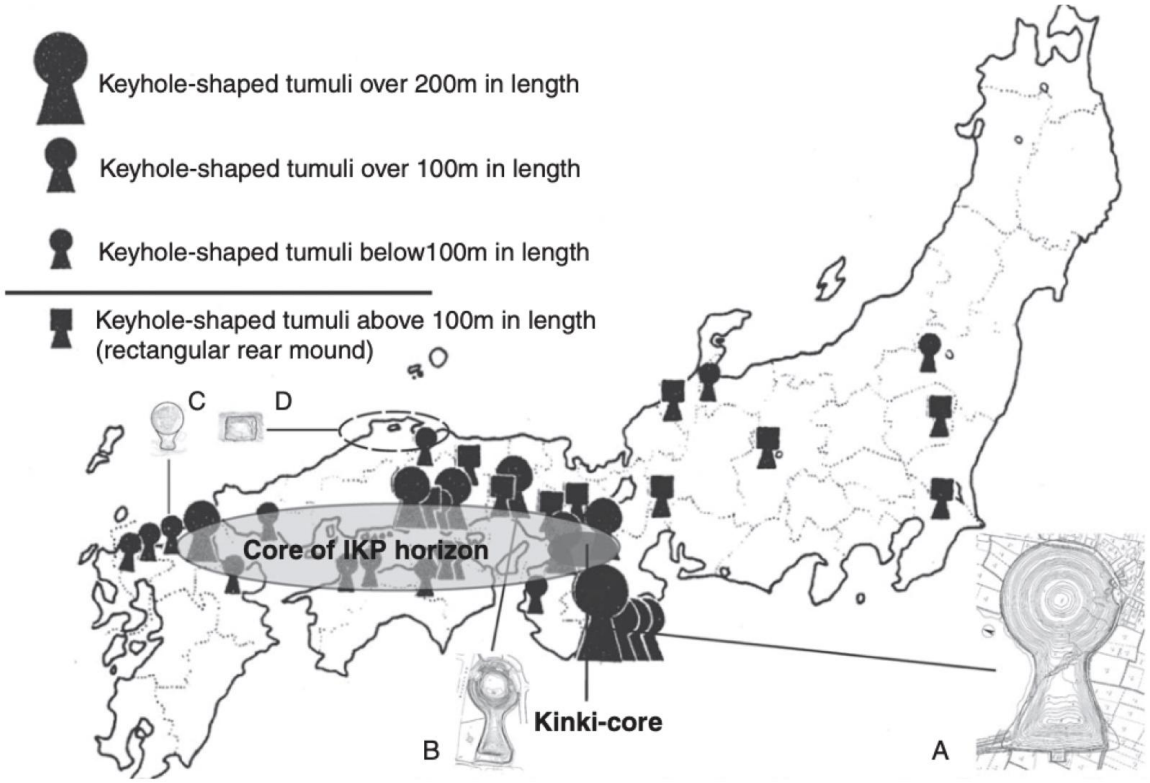

Figure 1. Map of Japan [5, p. 17].

The tattoo in Japan

Experimental archaeology, based on the more recent analysis conducted outside Japan, on the Neolithic Huslabjoch herder from the Alps of Northern Italy (also known as the Ötzi ice mummy) has shed light not only on the tattooing techniques in Prehistoric Europe. Based on recent analysis [6], researchers have concluded that the tattoos on the Ötzi ice mummy were made by incision, using a different technique from the modern one, by producing small incisions in the skin, which were then covered with charcoal (a rudimentary form of carbon black). These finding provide potential answers to how tattoos were eventually done in other parts of the world.

Although it is impossible to date exactly when tattooing had started in Japan, the earliest evidence of tattooing in Japan became more evident during the Jōmon period. This practice was attested by the presence of engraved and painted decoration on masks and on clay figurines known as *dogū* (土偶). Especially during the late Jōmon phase, when anthropomorphic figurines became much larger and more adorned than previous ones, one can observe the incorporation of decorative elements commonly interpreted as being tattoos [7]. Harunari Hideji suggests that in the Final Jōmon social groups were distinguished by the way they tattooed and painted their face [8, p. 133]. Another important aspect to note is that the *dogū* were decorated with engraved motives on the face and around the mouth, where red pigments were also found [8, p. 149]. This practice of tattooing the mouth (*sinuye* シヌイ エ) was quite common among the Ainu people, but was prohibited in the Meiji period and currently Ainu women paints only in special occasions their faces. Woman in the past were in charge of *sinuye* tattoos using obsidian utensils [9, p. 188]. Although we cannot assume that the *dogū* were depictions of Jōmon people themselves, these clay figures, which flourished in the Middle, Late and Final Jōmon periods, project the aesthetic values of their makers, they reveal something on Jōmon appearance and their connection to Ainu people traditions. Even more difficult is to

determine whether red pigments on the faces and bodies of these clay figurines represent tattoos [9, p. 151].

Chinese sources attest that people from the Japanese archipelago tattooed their body. The information provided by these sources can be interpreted in different ways and still drives debates among researchers nowadays. In the *Book of Wei* (ca. third century CE), for instance, the Wajin 倭人 (C. Woren) were described as people who practiced tattooing *geimen bunshin* 鯨面文身, (C. *qingmian wenshen*), which literally meant that they tattooed their faces and bodies [10, p. 14]. The same source quotes that in the Kona/Kunu/Kuna 狗奴 (C. *gounu*) chiefdom, ruled by a male king, people were also used to tattooing their bodies with motives depicting wild beasts and three marks on their foreheads [10, p. 14]. The text also informs that the marks were straight for noble people and small for inferior people [10, p. 14].

These two examples demonstrate that tattooing existed in Japan and that it was a functional emblem in social hierarchies as it happened with other practices (i.e. tooth ablation). Similar information could be found in earlier Chinese sources, although with less detail, such as the *Book of Han* (in the *Treatise on Geography*) compiled around the first century CE and the *Classic of Mountains and Seas* of the third or fourth century BCE. The list of Chinese sources on this topic could follow on.

Edward Kidder [10, p. 14] in his monograph about Himiko, the woman who ruled during the transitional stage at the end of Yayoi and the beginning of the Kofun period, shows four heads of clay figurines identifying the marks on their faces as being tattoos. These artefacts, spanning from the Middle Yayoi to the Late Kofun periods, demonstrate that some practices endured from one phase to another. The artefacts were: one from Osagata, Ibaragi, dated of the Middle Yayoi, another from the Òtsuka tomb cluster in Tochigi city, dated from the Middle–Late Yayoi, and two heads of full *haniwa* figures (one from Shijo Tomb, Kashihara city, Nara, dated from the Middle Kofun and another from the Horiki Tomb 7, Tanabe-machi, Kyoto of the Late Kofun period). Other examples, show a kind of decorative pattern on face (Figure 2a) identified as tattoo and red pigments, while in the case of Figure 2b these decorative patterns are not necessarily identified as tattoos. From a later period are examples of anthropomorphic *haniwa* with red pigments (Figure 3a) and incised pattern identified as tattoos (Figure 3b).

These kinds of decorative patterns can also be found on earlier masks, which appeared during the Late Jōmon phase. Junko Habu [11, p. 156] divides them into the following categories: realistic masks, curved-nose masks, mask-shaped clay artefact, composite mask, "clown" mask, "tattooed" and painted masks. The "tattooed" masks were found in Sanganji; Fukushima Prefecture. It is interesting to note that she also describes the *dogū*, however, she does not identify the decoration on these clay figurines as a kind of tattoo. To sum up, the red pigments on masks and clay figurines (both *dogū* and *haniwa*) can be interpreted in a different way. I suggest that, if they did not represent tattoos, as one can observe in the Figure 2b, they were possibly used as a sort of protection against evil.

In thinking about Kofun-period Japan and in dealing with a "history without writing", where social memory is reconstructed through non-textual material or by using sources from a later period or written outside Japan (for instance, in China), it is not easy to produce a coherent narrative around of this topic. Sometime looking toward the continent can provide some answers. China has a long historiographical tradition, set up by individuals who meticulously collected information not only about the territorial domain they originated from, but also about their neighbours. Although Chinese scribes did not always distinguish the inhabitants of South Korea from the Japanese, their histories constitute a valuable source to all those who are studying the Kofun period.

In East Asian cultures tattoo could represent a stigma, a branding mark (i.e. slave), an adornment (especially facial) and as a form of group identification (i.e. tribal, military, among others). In most cases, terms used to identify tattoo can also vary accordingly. In ancient China red body painting and tattoo drawings were discovered on pottery, bone and jade objects, suggesting that tattooing was not only meant to mark criminals, but had been somehow

connected to specific religious practices since ancient times [12]. Going back to the specific meaning attributed to red pigments found on the surface of figurines in China, both Mu Zhongjian and Zhan Jian assume that they represent tattoos.

Figure 2. Clay figurines with red pigments and face ornaments: *a)* jar with Human Face Ornament Yayoi period, 2nd–1st century BCE, found at Ozakata Site, Ibaraki TNM J-34947 [13]; *b) dogū* (Clay Figurine) Jōmon period, 2000-1000 BCE From Yoyama Shell Mound, Cho-shi, Chiba TNM J-7736.

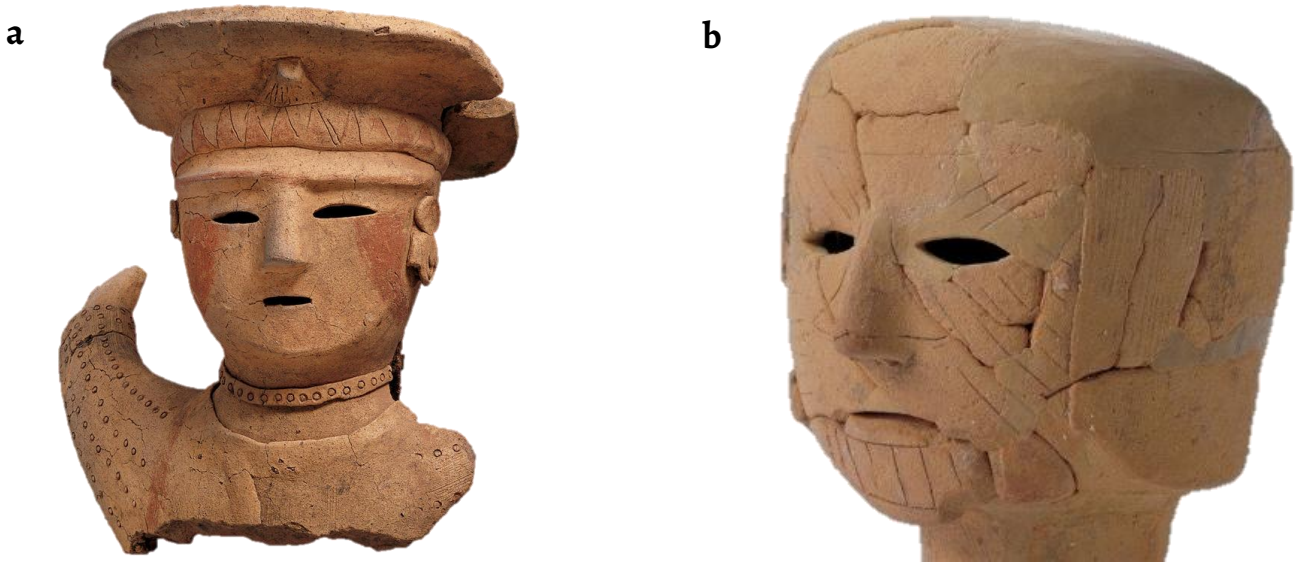

Figure 3. Clay figurines with red pigments and face ornaments: *a)* part of an anthropomorphic *haniwa* - female shrine attendant MET 2015.300.255; *b)* head of an anthropomorphic *haniwa* excavated from the Sumiyoshimiyamachi kofun cluster (Kobe) "tattooed" on the face - Kobe City Archeological Resource Center.

According to Mu Zhongjian [12, p. 55], tattooing was particularly widespread among people practicing totemism, as they believed that, if their bodies were marked with totemic patterns, they would be possessed by ancestral spirits and given magic powers and protection [12, p. 55] as had happened in Early China. It seem possible to conclude by analyzing diverse Chinese sources that tattooing was also a way to decorate and a method to empower the human body [12, p. 55] and, according to Yao Xinzhong, tattoos were eventually related to natural or ancestor worship [14, p. 78], but this should had happened long before the canonization of Confucius. In fact, according to Confucian thinkers, the body should be preserved intact as symbol of virtue and primary duty of respect, obedience, and care for one's parents, *kō* 孝 (C. *xiao*), *lit.* "filial piety" [14, p. 78]. Tattoo in China, especially after the influence of Confucian thought on society, does not seem to have ever been any used in a rite of passage into adulthood, as a mark of sexual maturity or marital status or as a mark of identification in a special occupation, among others [15].

Although it is not clear whether the practice of tattooing entered the Japanese archipelago directly from the continent or not, it is certain that the Chinese script exerted a great influence on the Japanese language, bringing – among others – a wide vocabulary to identify the tattoo practice implying different meanings and symbology. In an extensive study on *Irezumi* 入れ墨, its author, Rovert Van Gulik has explained how various *kanji* (漢字) have been used throughout history to identify the polysemy of the term tattoo: it was meant to beautify practice, to be used as an apotropaic device or to serve as punishment, a practice that seems to have begun around the late Kofun period and was abolished around 1870 [9]. Going back to the case of red pigments found on *haniwa*, if we agree that during the Kofun period tattoos, instead of being used for ritual or status purposes, began to be placed on criminals as a punishment, of course it is not plausible that those red pigments found on *haniwa* represented tattoos. On the contrary, if one assumes that red pigments symbolized a tattoo practice, in the specific case of the *haniwa*, they did not represent a kind of punishment. Anyhow, this remains a tricky question.

Red pigments (*sekishoku* 赤色): cinnabar-vermillion and bengara

The subject of colours in archaeology has been gradually drawing the attention of researchers from diverse disciplines [16]. Although various minerals have been ground for use as pigments for many centuries, various iron oxides ranging in colour from red to orange to black have been the most prevalent natural pigments.

The use of red colour established itself as a habitual cultural practice in Africa starting about 160,000 years ago [17]. This pigment was used to decorate living space, funerary environments, objects, body and clothes, among others. The use of red organic pigments (of plant or animal origins), which are brighter, only appeared much later, ca. 15,000 years ago, as a recent archaeological finding in the Kebara Cave (Mount Carmel in Israel) reveals [18]. Finally, the invention of synthetic pigments occurred in the mid-nineteenth century and around the twentieth century red cadmium sulfoselenides were also discovered.

Since Palaeolithic times, red pigment, often referred to as "ochre" (an umbrella term for minerals that are rich in iron and consequently have vivid colours) with a typically ruddy hue, due to its symbolic and sacred value, has been extensively used in a variety of rituals and social practices. The use of the bright red mercury sulphide [19] that has been documented in different parts of the world occurring in the last 10,000 years [20], was quite common in burial contexts. In East Asia, a wide use of this substance has been observed in funerary practices.

Yajima Kunio's contribution on colours [21] represents an important starting point to reflect on this topic. He states that cinnabar, the mineral, is the most common ore of oxidized mercury found in nature and that, although abundant in volcanic areas, it is not as easy to obtain. Pigments produced from cinnabar, were generally used for antiseptic and decorative purposes during the Kofun period, this being a practice that continued an earlier mid-Yayoi one [21], and

which became, eventually, a symbol of protection and power [22]. In a more recent study, Matsumoto Naoko, in her study on the Jōmon evidence of complex technology for creating durable coloured goods, pinpoints that in Japan there were two substances that were connected to the red colour: red iron oxide – *bengara* – and cinnabar – *shu*. Cinnabar (mercury sulfide), she adds, is associated to volcanic activities and hot springs and could only be excavated around the Median Tectonic Line [23]. Another important contribution to this field of research is the collective paper by Kawano Maya, Takeuchi Akinori, Takahashi Kazuya, Imazu Setsuo and Minami Takeshi [22]. The authors stress that throughout Japanese prehistory there were three main pigments that were used to produce red colour: red ocher, vermillion and lead oxide [22]. Most relevant though is that they highlight the importance of analysing the sulphur isotope ratio collected from remains as a key element to determine the provenance of red pigments found both in burial mounds and on grave goods. Research on sulfur isotope ratios has demonstrated differences between the cinnabar collected from Chinese ores and that from its Japanese counterparts [22], Minami also stresses that the cinnabar collected from mounded tombs could be divided into two groups [24] and concludes that, while in Western regions of Northern Kyushu and San'in, cinnabar was normally imported from China, in the case of Yamato there was a tendency to exploit local ores, which was observed back to the end of the second century CE [24].

In Japan, the funerary use of cinnabar has, most probably, a continental origin. In China, the Daoist soteriological dimension, which aimed at regulating the relation between the world of the living and of that of the dead, *dan* (丹, J. *tan*], red cinnabar, was used in alchemical methods for the preparation of elixirs. According to Daoist alchemy, the body was interpreted as a microcosm whose various parts corresponded to (macro) cosmic elements. It was believed that the ingestion of cinnabar turned the body imperishable [25-26].

Zhang Guoshuo and He Jun [27] have stated that bottoming burials with cinnabar was a common practice in ancient China, it decreased by the Shang period, but was not abandoned. In fact, this funerary custom became common also in other regions in East Asia.

The terminology used to identify the red colour sometime is misleading, especially when translated from one language to another [16]. Yajima Kunio has stated that red colour in general became important in diverse contexts. It was used to decorate earthenware and the author alerts that red pigments both from the Jōmon and Yayoi earthenware were sometimes referred to as *tansai* (丹彩). This word, according to Yajima Kunio, is an inaccuracy because *tan* should be understood as *entan* (鉛丹) or read-lead (minium), a mineral that was not used as a pigment until the Nara period (710-794) [21]. Red colour (J. *aka* 赤) is also found on clay in large numbers, but, while Jōmon pottery was painted after firing, Yayoi pottery was generally fired afterwards [21]. Yajima Kunio has affirmed that the red pigment found on *haniwa* is *bengara* (弁柄, also ベンガラ) [21]. As reported by Honda Mitsuko [28], *bengara* is a general term for pigments whose main constituent element is iron (ferric oxide) from which the red colour is derived. She has stressed that *begara* was just one out of three colours used during the Kofun Period to produce red pigments, the other two being vermilion (J. *shu* 朱) and cinnabar (J. *tan* 丹). She has also added that in ancient times the name used for red pigment was "Taisha" (代赭色), lit. red ochre colour. The list of terms used to identify the traditional red colours of Japan would become even more complex when studied in specific contexts (i.e. literature, art and crafts). The detailed analysis provided by Honda Mitsuko on red pigments found at sites of the Kofun Period demonstrate that the great majority is *bengara* (Gunma prefecture, Kyoto prefecture, Nara Prefecture, Okayama prefecture, Shimane Prefecture, Fukuoka Prefecture, Saga Prefecture, Kumamoto Prefecture and Ōita), the rest is *shu* (Shizuoka prefecture, Nagano prefecture, Kyoto prefecture, Osaka prefecture, Nara Prefecture, Okayama Prefecture, Shimane Prefecture, Fukuoka Prefecture, Saga Prefecture, Kumamoto Prefecture). In some sites, however, vestiges of both have been found [28].

From the late nineteenth century to the early part of the twentieth century various studies emerged that tried to quantify colors based on color matching and discrimination by eyes. Many methods have been refined in the time since [29]. Nowadays hue, lightness and saturation are the three dimensions typically chosen to describe colours. Colours is probably the most obvious way to categorise pigments, which are colorant and are grouped in families.

It is of general knowledge that the colour of a pigment is determined above all by its composition but also by the size and shape of the pigment particles. Vermilion is a typical pigment whose colour varies with particle size in particular when is naturally obtained from mineral cinnabar [29].

Observing Figure 4, one can speculate that, in the case of the anthropomorphic mask of the Jōmon period (Figure 4a), the red pigments could be interpreted as tattoos. One aspect that may lend support to this argument is the fact that Ainu women have kept the tradition of facial tattooing, especially around the mouth. According to Robert Van Gulik the Ainu women's tradition of keeping the tattooing practice is somehow linked to the fact that Ainu regarded this practice not merely as beautiful, but also as a way to emphasizing their communion with their great spirit ancestress, Kamui Fuchi, whose soot protects them against the evil [30].

In the case of *haniwa* (Figure 3a and Figure 4b) the red pigments on the cheeks are generally identified as tattoos too. If one relies on eighth-century Japanese sources, as mentioned before, tattoo was considered a kind of dermography symbolizing a status, a decoration and a punishment. In the *Nihon Shoki* there are at least two references to tattoos as a kind of body decoration, as in the description of the Yemishi from Hitakami [31, p. 300], and also as a kind of criminal's branding, this aspect having most probably been imported from the continent [31, p. 305]. In the *Kojiki* there are incidental mentions of tattooing as a punishment, but there is also allusion to woman "tattooing" their eyebrows and reference to the warrior Kume, whose tattoo on the corners of the eyes turned his gaze particularly sharp [32]. Still, although the sources clearly induce one to interpret the red pigments on *haniwa* as being tattoos, I would like to give one more suggestion: could the red pigments possibly represent a ritual that implied a sort of make-up of the face as a performative part of a particular war dance or funerary ceremony? This interpretation, however, comes from mere personal speculation and needs further investigation.

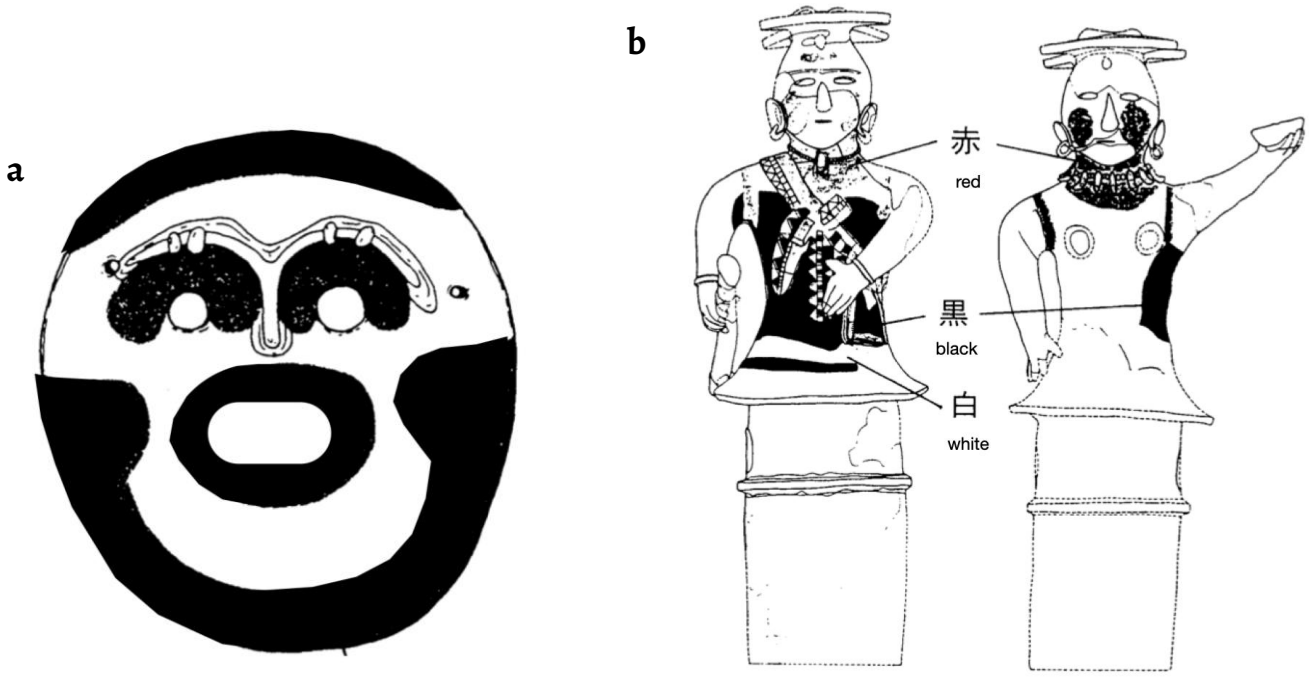

Figure 4. Clay artefacts with red pigments: *a)* anthropomorphic mask [21, p. 32]; *b)* anthropomorphic *haniwa* excavated from the nº4 tomb of the Tsukamawari Kofun cluster (Ōta-Gunma prefecture) "tattooed" on the face (red pigments) and with white and black pigments on the garment [21, p. 34].

Concluding remarks

Delving into the significance of the reddish pigments found on the surface of anthropomorphic *haniwa* it is not an easy task. These permanent marks may be seen as a reflection of the body adornment of those participating in the funeral rites and, possibly, the deceased. In Japan, the practice of tattooing, whose symbolic meaning has evolved over time, can be traced back to the Jomon period, nevertheless, the presence of reddish decorative motifs on both the face and body of the Kofun period *haniwa* leaves many interpretive possibilities open. There is no doubt that these marks hold a significant value, not only in the funerary context but also in shedding light on the broader social dynamics of Kofun *ethnoscape*.

A topic that was not developed in this paper and, could have further enriched our understanding of these permanent markings on *haniwa,* would have been the inclusion of crucial archaeometric data regarding the production and origin of the pigmentation used on *haniwa* during the Kofun Period. Cinnabar and bengara samples have been analysed using a range of techniques, including polarized light microscopy (PLM), X-ray fluorescence spectroscopy (XRF), X-ray diffraction (XRD), and energy dispersive X-ray spectrometry (EDS). As pinpointed by Minami Takeshi, Imai Akira, Bunno Michiaki, Kawakami Kawakami and Imazu Setsuo, of particular significance is the application of isotopic determination techniques (Carbon-Oxygen-Sulfur), which have proven indispensable in tracing the provenance of minerals like cinnabar used as pigment, offering invaluable insights into the sources and trade routes of ancient pigments [24].

These techniques are instrumental in mapping the provenance of artifacts, providing a deeper understanding of their origins and historical context. While there are no doubts as to the fact that *haniwa* were produced locally, there has, however, been some discussion as to the extent to which the pigments used to mark the anthropomorphic *haniwa* and decorate the mounded tombs might have been a commodity for long-distance exchange. So far, two different patterns of raw material provenance were evidenced through the archaeometric analyses of the red pigments determining that they were both imported and produced locally in the Japanese Archipelago. By examining the material culture, such as the pigments used in haniwa, researchers can trace patterns of migration and the spread of cultural practices, helping to build a more comprehensive understanding of how these populations interacted and influenced one another in the Kofun period.

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REFERENCES

1. Matsumoto, N., 'Japan: the earliest evidence of complex technology for creating durable coloured goods', *Open Archaeology* **4** (2018) 206-216, https://doi.org/10.1515/opar-2018-0013.
2. Kondo, Y. 近藤義郎, *Zenpō kōenfun no jidai 前方後円墳の時代 [The age of the keyhole tumulus]*, Iwanami Shoten, Tōkyō (1983).
3. Mizoguchi, K., *The archaeology of Japan: from the earliest rice farming villages to the rise of the State*, Cambridge University Press, Cambridge (2013).
4. Barnes, G. L., *State Formation in Japan*: emergence of a 4th-century ruling elite, Routledge, London (2010).
5. Mizoguchi, K., 'Nodes and edges: a network approach to hierarchisation and state formation in Japan', *Journal of Anthropological Archaeology* **28** (2008) 14-26, https://doi.org/10.1016/j.jaa.2008.12.001.
6. Deter-Wolf, A.; Robitaille, B.; Riday, D.; Burlot, A.; Jacobsen, M. S., 'Chalcolithic tattooing: historical and experimental evaluation of the Tyrolean iceman's body markings', *European Journal of Archaeology* **27**(3) (2024) 267-288, https://doi.org/10.1017/eaa.2024.5.
7. Silberman, N. A.; Bauer, A. A.; Díaz-Andreu García, M.; Holtorf, C.; Waterton, E. (eds.), *The Oxford companion to archaeology*, vol. 1, Oxford University Press, New York (2012), https://doi.org/10.1093/acref/9780199735785.001.0001.
8. Kobayashi, T., *Jomon Reflections Forager Life and Culture in the Prehistoric Japanese Archipelago*, eds. S. Kaner & O. Nakamura, Oxbow Books, Oxford (2003), http://books.casematepublishers.com/Jomon_Reflections.pdf (accessed 2024-11-06).

9. Gulik, W. R. van, *Irezumi: the pattern of dermatography in Japan*, Brill, Leiden (1982).
10. Kidder, J. E., *Himiko and Japan's elusive chiefdom of Yamatai: archaeology, history, and mythology*, University of Hawai'i Press, Honolulu (2007), https://ctext.org/ (accessed 2024-11-06).
11. Habu, J., *Ancient Jomon of Japan*, Cambridge University Press, Cambridge (2004).
12. Zhongjian, M.; Jian, Z. (trans.), *Handbook of the history of religions in China. I, from the beginnings until the period of the five dynasties and ten kingdoms*, Ibidem-Verlag, Stuttgart (2020).
13. *ColBase*, https://colbase.nich.go.jp/ (accessed 2024-11-06)
14. Xinzhong, Y.; Yanxia, Z., *Chinese religion: a contextual approach*, Continuum, London (2010).
15. Reed, C. E., 'Tattoo in early China', *Journal of the American Oriental Society* **120**(3) (2000) 360-376, https://doi.org/10.2307/606008.
16. Bogushevskaya, V.; Colla, E., *Thinking colours: perception*, Cambridge Scholars Publishing, Cambridge (2015).
17. Dapschauskas, R.; Göden, M. B.; Sommer, C.; Kandel, A. W., 'The emergence of habitual ochre use in Africa and its significance for the development of ritual behavior during the middle stone age', *Journal of World Prehistory* **35** (2022) 233-319, https://doi.org/10.1007/s10963-022-09170-2.
18. Davin, L.; Bellot-Gurlet, L.; Navas, J., 'Plant-based red colouration of shell beads 15,000 years ago in Kebara Cave, Mount Carmel (Israel)', *PLoS ONE* **18**(10) (2023), https://doi.org/10.1371/journal.pone.0292264.
19. Gliozzo, E., 'Pigments – mercury-based red (cinnabar-vermilion) and white (calomel) and their degradation products', *Archaeological and Anthropological Sciences* **13** (2021) 210, https://doi.org/10.1007/s12520-021-01402-4.
20. García Sanjuán, L.; Montero Artús, R.; Emslie, S., 'Beautiful, magic, lethal: a social perspective of cinnabar use and mercury exposure at the Valencina Copper age mega-site (Spain)', *Journal of Archaeological Method and Theory* **31** (2024) 1006-1061, https://doi.org/10.1007/s10816-023-09631-8.
21. Yajima, K. 矢島国雄, '*Senshi jidai no shikisai* 先史時代の色彩' [Prehistoric Colours], *Shikizai Kyokaishi* 色材協会誌 *[Journal of the Japan Society of Colour Material]* **70**(4) (1997) 256-264, https://doi.org/10.4011/shikizai1937.70.256.
22. Kawano, M.; Takeuchi, A.; Takahashi, K.; Imazu, S.; Minami, T., 'Determination of sources of vermilion used in Japanese burial mound of Yayoi and Kofun periods', *ISIJ International* **54**(5) (2014) 1155-1158, https://doi.org/10.2355/isijinternational.54.1155.
23. Matsumoto, N., 'Japan: the earliest evidence of complex technology for creating durable coloured goods', *Open Archaeology* **4** (2018) 206-216, https://doi.org/10.1515/opar-2018-0013.
24. Minami, T.; Imai, A.; Bunno, M.; Kawakami, K.; Imazu, S., 'Short contribution: using sulfur isotopes to determine the sources of vermillion in ancient burial mounds in Japan', *Geoarchaeology* **20**(1) (2005) 79-84, https://doi.org/10.1002/gea.20035.
25. Robinet, I., *Histoire du Taoïsme des origines au XIVe siècle*, Editions du Cerf, Paris (1991).
26. Pregadio, F., *Il libro dei nove elisir: la tradizione Taoista*, Casa Editrice Astrolabio-Ubaldini Editore, Roma (1990).
27. Zhang, G.; He, J., 'A study on the cinnabar-bottomed burials of the early Bronze Age', *Chinese Archaeology* **19**(1) (2019) 163-168, https://doi.org/10.1515/char-2019-0012.
28. Honda, M. 本田 光子, 'Kofun jidai no akairo ganyou 古墳時代の赤色顔料 (Red pigments of the Kofun period)', *考古学と自然科学 Archaeology and natural science* **31-32** (1995) 63-79.
29. Diebold, M.; De Backer, S.; Niedenzu, P. M.; Hester, B. R.; Vanhecke, F. A. C., *Pigments, extenders, and particles in surface coatings and plastics: fundamentals and applications to coatings, plastics and paper laminate formulation*, Springer, Switzerland (2022), https://doi.org/10.1007/978-3-030-99083-1.
30. Munro, N. G.; Seligman, B. Z., *Ainu creed and cult*, K. Paul International, London (1996).
31. Aston, W. G., *Nihongi : chronicles of Japan from the earliest of times to A.D. 697*, Tuttle Pub., New York (2011).
32. Philippi, D. L., *Kojiki*, Princeton University Press, Princeton (2016), https://doi.org/10.1515/9781400878000.

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