

# Semiotics Analysis of the Landscape Reconstruction of Medang Kamulan Ancient Sites Grobogan - Central Java

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**Abstract**— This study examined the landscape of the Medang Kamulan site in Banjarejo Village, District of Gabus, Grobogan-Central Java, which is often mentioned as the center of ancient Mataram kingdom. This opinion is based on the toponym of Medang (Kamulan) which is identical to the signifier of the Ancient Mataram palace name in the VIII-X century AD. The aim of the study was to reconstruct the landscape of the Medang Kamulan site to obtain an overview of the environment of the ancient Javanese civilization. The research was conducted through the stages of inscriptions data collection, Chinese news sources, maps of the earth images, and geological maps. The next stage is the survey of the environment by arranging the landform units, identifying soil and rock, water resources observations, and archaeological data collection. The result shows that Medang Kamulan landscape is consisting of structural units of gentle slope landform, denudational flat landform units, fluvial landform units, and artifacts finding which include ceramic container, pottery container, currency, and jewelry. Next, the environmental signifier and artifacts signifier will be analyzed using environmental semiotics, the results show that *Medang Kamulan* site represents the prehistoric ancient environment and developed into the community of the Ancient Javanese starting from the local community that interact with the culture of India and China.

**Keywords**— *semiotic analysis; landscape reconstruction; Medan Kamulan ancient sites*

## I. INTRODUCTION

The name Medang is identical to the name of the capital city of Ancient Mataram kingdom in the VIII century AD, as it is written in the inscription by the name *medang i bhumi mataram*, *medang ri poh pitu*, *medang ri mamrati*, *medang i tamwlang*, *medang i watu galuh* (Poerbotjaraka, 1982, Munoz, 2009, Rahardjo, 2011). The community often interpret the Medang Kamulan's toponym, which is located in Grobogan, as the beginning (*Kamulan*) of the Mataram palace. Archaeologists have been conducting research to gather archaeological evidence about ancient Javanese civilization in the research area. In addition to toponym signifier, there are also findings of artifacts in the form of ceramic container fragments, pottery container fragments, and a number of gold jewelry, currency, and household appliances in the form of *gandik-pipisan* which is a signified of the residential neighborhood of ancient Javanese community who have interacted with people overseas (India, China).

According to the archaeological data in 2015, in the Medang Kamulan rice field at a depth of 1.5 meters above sea level, a structure of brick buildings measuring 40x20x9 cm was found. A number of ancient animal fossils in the form of elephant ivory, horns and buffalo teeth (Bovidae) which describes the environmental conditions of Medang Kamulan prehistoric times was also found.

The current location of Medang Kamulan site is approximately 3 km from Jepara, Rembang. In the seventh century AD it was the northern coast of the Java Island, which is known as the Muria Strait. This means that at the time, the Java Island was separated by Mount Muria and the Muria strait that was fairly wide became the trading road and many ancient ports was built along the north Coast of Java Island. In 2008, in Punjulharjo beach, Rembang, Central Java, a ship which is estimated to date from the seventh century AD was found. This proves the important role of Java north coast in the maritime field.

The information obtained from China News source tells the journey of Fa Hsien in his book *fo Kuo-chi* (notes of the lands of Buddha). Along the way, the ship he boarded was forced to dock in the *yeh-po-ti* country (this place was connoted as Yavadwipa or Java. In the seventh century AD, the ports in Lasem, Rembang was thought to be visited by lots of merchants. It was supported by the hinterland condition that is fertile and rich with a commodity that is selling well (Sulistiyono, 2017). China News source from the Tang dynasty mentioned an area by the name Ho-Ling as a fertile region with natural resources in the form of turtle skin, gold and silver, rhino horn, ivory, and drinks from sugar palm tree (Casparis 1956, Groeneveldt, 1964 Poerbatjaraka, 1982,

Abdullah, 2012). One area that is close to the north coast and is estimated to have existed in the VII century AD is Medang Kamulan.

This study does not discuss about the Ancient Mataram kingdom. However, the interesting part of the research is reconstructing the landscape of Medang Kamulan that is known as the signifier of the Ancient Javanese civilization, as proven by the variety of artifacts and written record findings from Chinese News.

## II. LITERATURE REVIEW

The toponym Medang Kamulan in Purwodadi, Grobogan (Central Java), has always been associated with the ancient Mataram Kingdom (VIII century AD) (Poesponegoro, 2009, Rahardjo, 2011, Lombart, 2000). The center of the ancient Mataram Kingdom is not yet known, but it is believed to have been located in Kedu and Yogyakarta as proven by the large number of temple buildings. Relics in the form of temples, statues, daily equipment, ceremonial equipment, as well as inscriptions show that these temples are close to their supporting community (Boechari, 1970, Wirasanti, 2015). However, it is not easy to trace the palace and also the Ancient Mataram residential areas due to the volcanic activities of the Merapi Volcano that happened repeatedly and affected these areas from VIII to X Century AD. The proof can be seen from the relics of temples in Kedu and Yogyakarta; all temples were found damaged and under volcanic materials that were once lava and ash (Bemmelen, 1949, Andreastuti, 2006). The repeatedly occurring volcanic activities at the time are believed to have destroyed the ancient Mataram palace; therefore, it is then believed that the palace had been moved more than once to different areas (*medang ri poh pitu, medang ri mamratipura*).

It is mentioned in the inscription that the Ancient Mataram palace was moved eastward. Archaeologists argue that, based on this directions, the palace was moved to Medang Kamulan located in Grobogan. However, this claim was denied because there was no temple building in Medang Kamulan (Poesponegoro, 2009, Abdullah, 2012, Rahardjo, 2012). Nevertheless, until today the Medang Kamulan area in Purwodadi, Grobogan is believed to have been the center of the Ancient Mataram Kingdom. To prove this, studies currently continue to be carried out from various scientific disciplines in Medang Kamulan area. A number of studies have proven that Medang Kamulan area is a part of a wider area on the north coast of Java as a trade route (Sulistiyono, 2017, Siswanto, 2015).

## III. METHOD

This research began by collecting library data in the form of inscriptions, Chinese News, and the results of archaeological research related to Medang Kamulan, preparing topographic maps, geological maps and geological compass tools. The field work was carried out by surveying the field, identifying landform unit to obtain an image of the landscape of Medang Kamulan region. Next, the observation on the land and rocks, water resources, land use, and various findings of artifact data was conducted. The result shows there are three landform units, they are structural units of gentle slope landform, denudational flat landform units, and fluvial landform units. The landform unit maps are overlaid with artifact data, resulting in a description of archaeological findings and their environment. Furthermore, the data is analyzed by environmental semiotics (Ferdinan de Saussure), using the basis of the theory that Medang Kamulan region was considered as a structured signifier system. A set of signifier and signified will be arranged in a syntagmatic and paradigmatic arrangement, resulting in the concept of ancient space of the Medang Kamulan area.

## IV. RESULT AND DISCUSSION

### A. Environmental Signifier

The Medang Kamulan site is located in Banjarejo village which is administratively part of the District of Gabus, Regency of Grobogan. The Grobogan area is located between 110°15'15"E - 111°02'25"E and 7°03'S - 7°03'30"S with hills and flatland morphology in the middle. Medang Kamulan area is located in a physiographic unit that shows the landscape zone of the Randublatung tectonic depression flanked by Rembang Mountains Zone and the Kendeng Mountains Zone (van Bemmelen, 1949).

The research carried out in Grobogan, especially the Medang Kamulan area (Datun, 1996, Pringgoprawiro, 1983, Sandria, 2010, Husein, 2016, Fathoni, 2016) mentions that the physiography of the research area included the Randublatung Zone, which is flanked by the Kendeng zone in the south and Rembang zone in the north. The landscape in the Banjarejo area (Medang Kamulan area) refers to the research conducted by Fathoni in 2016, it can be divided into three landform units. The structural units of gentle slope landform, which has a slope percent of 4.65 with the height difference of 5-50 m, therefore it is classified as a gentle slope relief classification. The land use in this unit is in the form of rice fields, dry fields, and sugar cane and teak plantations. The flat/almost flat denudational landform units with a slope percentage of 1, 4% with a height difference of <50 meters is the most extensive area. The land use in this area is in the form of settlements and rice fields. The gentle slope fluvial landform with slope percentage of 3.11% with a height difference of 5-50 meters. This area is located along the Medang River and Lusi River with meander flow patterns. The land use in this area is in the form of rice fields and settlements.

Based on geological maps and field observations, the environment characteristic in the Medang Kamulan area (Banjarejo village) includes the North Coast Zone. During the Pliocene era, the Muria Island was formed on the +25 above sea level as a volcanic island which is separated from Java Island and known as the Muria Strait (figure 1).

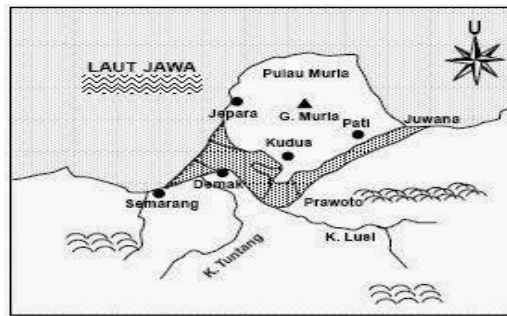


Fig. 1. Muria Island is separate from the island of Java (Source <https://ihdaihda.wordpress.com/tag/pulau-muria/>)

According to the research conducted by Hussein and Barianto (2016), the coastline of the north coast of Central Java in the VIII century AD was still protrudes towards Purwodadi, it is estimated that Medang Kamulan settlements (Figure 2) is already existed. Furthermore, according to Husein (2016), in 16th century in the golden era of the Demak Sultanate, the coastline was thought to have shifted to the current city of Demak (Figure 3). At that time, the forward progress of the coastline as far as 30 km occurred within a period of about 800 years, with sedimentation speeds averaging of 40 m/year. Until now, the estuary of the two rivers is still active in sedimentation which pushed forward the coastline between Jepara and Semarang, characterized by the bird's foot delta morphological type. On the other hand, the remains of Muria Strait which is shallow and turns into an alluvial land also forms the flow of the Juwana River, which flows northeastward across Pati and forms a cusped delta type at the west of Rembang (Husein et al., 2016).



Fig. 2. Medang Kamulan on the north coast (Source: <https://alamendah.org/2012/02/18/gunung-muria-sejarah-status-dan-potensi/>)

In 2017, the people in the Medang Kamulan area discovered ancient animal fossils including elephant ivory, deer, and buffalo. Research by Siswanto (2015) in Patiayam region (the south slope of Mount Muria) mentions that the fossils of vertebrate fauna in Patiayam was found in the pretty large locations. The number of fossils from Patiayam and the findings of the Paleontological Laboratory collection show similarities with fauna found in other regions of Java. The findings include the fossils of bulls, buffaloes from the Bovidae family, deers from the Cervidae family, elephants from the Stegodontidae family, become a marker of the Middle Pleistocene. These fossils describe ancient environmental conditions (Paleoenvironment) in the past, such as tropical rain (open wood forest), tropical rain forests, freshwater environments such as rivers, swamps and lakes (Siswanto (2015). The Medang Kamulan site was close to the north coast of Java at that time, which was a part of the Patiayam site area. Some area of Medang Kamulan land morphology is now a part of rice field areas. In the Grobogan district regulation number 10 of 1994 concerning the General Spatial Planning for the Grobogan II Regional District, the Banjarejo area (Medang Kamulan) is a water catchment area which is an area that provides protection for the surrounding area. Based on data from the Directorate of Forestry Program about the climate in Grobogan region, which position is located between the northern coast and the eastern part of the Bengawan Solo Hulu, this area is included in the climate type D that are dry for 1-6 months and wet for 1-6 months with a minimum temperature of 26°C.

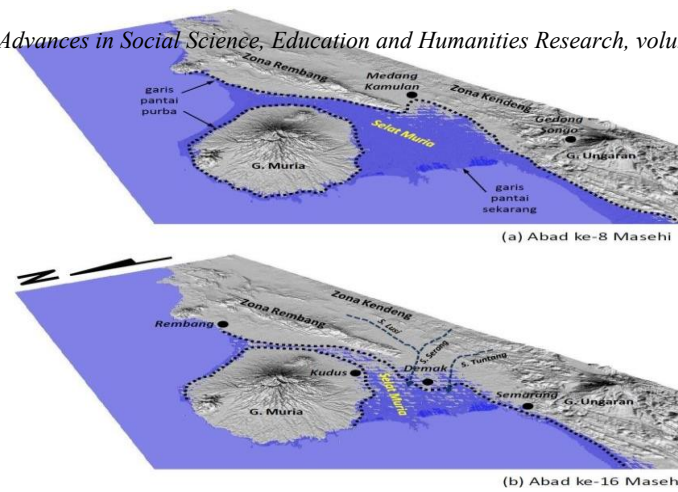


Fig. 3. Changes in the morphology of the north coast of western East Java, due to the sedimentation rate of Delta Serang and Delta Tuntang (Source: Husein et al., 2016).

### B. Cultural signifier

Tracing the remains of ancient Javanese civilization in Central Java can be started from the Tuk Mas inscription (mid- VII century BC), written in Sanskrit language and was found on the slopes of Merbabu, in Lebak Village, Grabag, Magelang, Central Java. The Tuk Mas inscription is a signifier of a civilization before the ancient Mataram kingdom in the VIII century AD. The images of ancient Javanese communities in Central Java can be learned from written sources of the China News of Tang Dynasty (818 AD), who called Java as Ho-ling (Damais, 1964, Poesponegoro, 2009, Groeneveldt, 1964). Based on China News, Ho-ling described a large kingdom surrounded by subordinate kings. However, it is not easy to trace the footsteps of Ho-ling civilization, because the signifier of the artifacts that are monumental or non-monumental are still not enough to give a description of Ho-Ling's civilization. In several studies, Ho-ling was often interpreted with the kingdom of Kalingga.

In China News, it was mentioned that Ho-Ling was located in the southern ocean, to the east lies P'o-li and to the west lies *Top-o-teng*, to the South lies the ocean, and in the north lies Chen-la. Further described there was an area called Lang-pi-ya in the mountainous environment and in that place the king enjoyed a view of the sea. In the middle of summer, people set up an 8-foot tall gnomon, the shadow will fall to the south, and its length is two feet four inches. The description of the landscape of the Ho-ling region, according to some experts, is estimated on the north coast of Java (Lasem, Rembang). It was also described that Ho-ling was a prosperous kingdom with natural resources in the form of turtle skin, gold and silver, rhino horn, ivory, and its inhabitants processing drinks from sugar palm trees.

In the period after the kingdom of Ho-ling, the Mataram kingdom with its capital in Medang was known. In the Mantiyasih inscription (907 AD), the name Sanjaya was written as the first king who reigned in Medang as *Rakai Mataram Sang Ratu Sanjaya* (Poerbatjaraka, 1982, Poesponegoro, 2009, Abdullah, 2012).

Based on the Mantiyasih inscription, King Sanjaya became the early signifier of the Mataram kingdom which took place in the VIII century AD in the Central Java region. The Ancient Mataram civilization developed in the Central Java and part East Java started from the VIII centuries to the mid X centuries. The ancient kingdom of Mataram as an agricultural kingdom is located in an environment with fertile land and abundant water sources. The landscape of Ancient Mataram kingdom covering the Central Java territories in the form of Ungaran, Sundoro - Sumbing, Merapi and Merbabu volcano ranges. In the middle of the mountain range, the plains and valleys stretches widely which are the choice for settlement in the Ancient Javanese community. Archaeological and inscriptions findings prove the high intensity of archaeological findings in the area of Borobudur and Prambanan. The evidence that can still be seen today are temples with various sizes. The temples are scattered in various landform, such as the hills, alluvial plains, and volcanic slope landforms (Bemmelen, 1956, Zuidam, 1998, Jones, 1984, Wirasanti, 2015).

It is mentioned in the inscription that the ancient Mataram palace in Central Java moved around from *medang I Bhumi Mataram*, *medang ri poh*, *medang ri mamrati*, *medang tamwlang*, *medang i watugaluh*, *medang I wwatan*. Until now, the location of the royal capital is unknown and still continues to be debated. Archaeologists argue that the royal center moved from Kedu to the east.

In Grobogan area (located in the east Kedu), there is a signifier of the toponym, that is Medang Kamulan village, which then interpreted that the Ancient Mataram kingdom was once moved there. But that opinion was denied because there were not much archaeological data that proved Medang Kamulan as a kingdom, although a number of the structure of brick and metal artifacts, the Chinese currency (coin), ceramic container fragments, fragments of pottery container has been discovered. (Ancient Human Site Preservation Hall, 2017).





Fig. 4. Rice field environment at the Medang Kamulan Site (Source: Wirasanti, 2018)



Fig. 5. Findings of ceramic fragments, pottery, Medang Kamulan site (Source: Wirasanti, 2018)

In addition to the artifacts that were found to be a signifier of the influence of Hindu culture, there were many fossils of elephant ivory, deer antlers, and Bovidae teeth, which became a signified of the pleistocene ancient environment at Medang Kamulan. Paleogeomorphology research (Thornbury, 1954. Siswanto, 2015, Husein, 2016) proves that in the eighth century AD, the Grobogan area was close to the north coastline of Central Java. It means that Muria Volcanic Mountain and Lasem is an island separated from the mainland of Java, known as the Muria Strait. According to the Chinese News report, in the VII century AD, the Strait was a trade route, and there were several ports in the region (Groeneveldt, 1964, Sulistiyono, 2017). The China News does not specifically mention the names of ports on the north coast of Java, but it is estimated that there is a port that is relatively close to the villages on the north coast of Java, including Medang Kamulan.

The archaeological evidence proves that in 2008 in Punjulharjo village, District of Rembang, Central Jawa, an ancient boat at the 2 meters depth with 17,9 meters length and 5,6 meters width, and weighs 60 tons was discovered (figure 6). Axes, bone, carved rods, pieces of pottery bowls were found inside the boat. A team of archaeologists from the Yogyakarta Archeology Institute conducted a radiocarbon analysis of boat fibers sample in Beta Analytic Radiocarbon Laboratory, Miami, Florida, USA. The results indicate that the boat came from VII-VIII century AD ( <https://indocropcircles.wordpress.com/2012/02/13>). The size of the boat was large enough to be a sign that the boat was used for long-distance shipping and described that the Muria Strait was large enough to be a trade route of the time. In the sixteenth century AD, there had been sedimentation with the bird's foot morphological signifier which became a signified that the coastline had shifted as far as 30 km.



Fig. 6. Ancient Boat Village of Punjulharjo, Rembang (Source: <http://rembanghitscommunity.blogspot.com/2016/04/situs-perahu-kuno-punggul-harjo-perahu.html>)

The ship finding at the Punjulharjo beach, Rembang-Central Java, also prove the crucial role of the north coast of Java in the maritime field. The condition of the ancient port can be traced from the Chinese News which tells the journey of Fa Hsien in his

book *Kuo-chi* (record of Buddhist countries). On his way, the ship he boarded was forced to dock in *Yeh-po-ti* (this place was connoted with Yavadwipa or Java). The ports in Lasem, Rembang, in the seventh century is estimated to be visited by merchants, it is supported by the fertile hinterland condition and rich with a selling commodity, making it an important trade route (Sulistiyono, 2017). This means that at that time, Java Island was separated with Mount Muria and the condition of Muria Strait was large enough to trade and to build some ports along the north coast of Java. An ancient boat from Punjulharjo Beach with a large enough size proves that boat transportation has an important role as a liaison between regions. The description of a boat in the variety of forms can be traced through reliefs carved on the walls of the Borobudur Temple (figure 7).



Fig. 7. The shape of a boat from the Relief of Borobudur Temple

(Source : [https://id.wikipedia.org/wiki/Berkas:Bobobudur\\_Ship\\_\(Leemans,\\_pl.\\_ci.\\_172\).png](https://id.wikipedia.org/wiki/Berkas:Bobobudur_Ship_(Leemans,_pl._ci._172).png))

TABLE I. ENVIRONMENTAL SEMIOTIC ANALYSIS OF MEDANG KAMULAN AREA

Sites	Location	Landscape	Period	Archaeological findings	Concept of ancient space
Medang Kamulan	Village on the north coast	Gentle slopes structural landform, flat denudational landform units,	Prehistoric period	Elephant ivory, deer antlers, and <i>Bovidae</i> teeth fossils	
	Inland villages near the coast	Fluvia landform, aluvial landform	Indonesian Hinduism-Buddhism	Ceramic fragments, pottery fragments	

## V. CONCLUSION

From the discussion above, it can be concluded that the Medang Kamulan area landscape with alluvial, structural, and fluvial landform signifier represents the dynamics of changes in the environment since prehistoric times (during the Pleistocene - Holocene) until the XVII century AD. Ancient animal fossils signifier prove the ancient environmental conditions of the Medang Kamulan region and its surroundings. In the VII century AD the Muria Strait became a trade route and ports was built on the northern coast of Java. The condition of the Muria Strait that is sloping and relatively calm, and close to the mouth of the river, maybe navigable by boats towards inland. The inland residential area (Medang Kamulan) that is fertile makes it possible for cultural contact to happen. The signifier of artifacts findings from Indian and Chinese cultures in the form of Chinese ceramic container fragments and metal jewellery artifacts prove that the Medang Kamulan area is a location that supports the position of the north coast as a trade route.

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