



its zenith during the reign of Jayavarman VII (1181-1218), Angkor Wat was the hub of the empire (Culture, <https://www.bbc.com/culture/article/20170309-the-mystery-of-angkor-wat>), transformed into Buddhist temple from Hinduist though.

Nonetheless, in Wolters' (1965) a prior speculative reconstruction, the Khmer Empire coexisted with other state rulers in the form of 'king of circles' parallel to that of the ancient India. Within this configuration, or *Rajamandala* which Wolters (1965) drew comparison from, there were friendly and hostile state rulers existing within the Khmer empire. These state rulers were neither strong enough to overthrow the king state nor able to unite with other state rulers against the king state.

History notes, the Khmer kingdom collapsed after Siam invasion in 1431. In disarray, King Ayutthaya abandoned the city and fled south bound. Recent excavations conducted by Carter et al. (2019) and her team in the vicinity of Angkor Wat reveals, notwithstanding the decline and the southward shift of the Ayutthaya Kingdom, Angkorians never left the locale as the excavation data evidently demonstrated the region's continued 'ideological importance and residential use' (Carter et al., 2019). Further, one of the many video clips posted on YouTube recently (2019, <https://www.youtube.com/watch?v=5AufqGjr8oo>) correlated the decline of the Angkor Empire with the following factors: (1) the conversion of Buddhism from Hinduism by king Jayavarman VII after gaining power; (2) the devastating military campaigns of expanding Siam; and (3) the result of climate change and the collapse of its infrastructure such as its reservoir for irrigation.

On the other hand, at the mention of Angkor Wat nowadays, Henri Mouhot is often incorrectly credited as its first discoverer though the entire Angkor sites were known to the Khmers the whole time. Moreover, existing document also reveals that several westerners had visited the sites far earlier than Mouhot since the 16<sup>th</sup> century. As mentioned in Mouhot's journals, Father Charles Emile Bouillevaux of his contemporary had published *Travel in Indochina 1848–1846, The Annam and Cambodia, 1857* after having visited Angkor Wat and other Khmer temples five years earlier the least.

The French naturalist and explorer Henri Mouhot's re-discovery of Angkor Wat commenced after the Royal Geographical Society and the Zoological Society of London had financed him for a zoological mission to Indochina in 1858. Mouhot popularized and alerted Angkor in the West through his illustrated journals "*Voyage dans les Royaumes de Siam, de Cambodge, de Laos et Autres Parties Centrales de l'Indo-Chine*" published in 1868. Unfortunately, he made grave errors by dating Angkor's formation to around the same era as Rome as well as taking the Khmer inhabitants as barbaric, and presumed they could not have been the original settlers: 'One of these temples—a rival to that of Solomon, and erected by some ancient Michael Angelo—might take an honorable place beside our most beautiful buildings. It is grander than anything left to us by Greece or Rome, and presents a sad contrast to the state of barbarism in which the

nation is now plunged' (Mouhot, 2014, p. 280). On Mouhot's 4<sup>th</sup> expedition in the jungles of Laos, besetting malaria in the region claimed his life unexpectedly ([https://www.stmarylebone.org/images/stories/History/Henri\\_Mouhot.pdf](https://www.stmarylebone.org/images/stories/History/Henri_Mouhot.pdf)).

## OBJECTIVES OF THE STUDY

This investigation bears a twofold objective: first, *Zhenlafengtuji* is examined in light of cultural dissemination as a contributing factor in the restoration of the Angkor chronology and civilization; per contra, the geographical significance of *Zhenlafengtuji*, including the outcome of government intelligence collection or the faithful recording practice of the ancient China—the Celestial Empire—which gave rise to numerous books of geography, was duly examined and treated.

## LITERATURE REVIEW

Culture, as stated by Tylor (1871), refers to the social behavior and norms of human societies, together with their arts, laws, customs, capabilities, habits, beliefs and knowledge. Cultural, in the adjective form, translates what is subsumed in the above connotation.

Prior to the occurrence of any form of communication, there must be a sender and a receiver. The sender sends out information, while the receiver collects the information, processes it and sends information back. Dissemination takes on the theory of communication, but only partially: The information is sent out not to one individual but many and received, only no reply is given. That signifies, sine direct contact to the receiver and response or clarification method, 'dissemination' basically means sending information to an audience unidirectionally. Moreover, dissemination bears 'seeds scattering' connotation in its Latin origin. These seeds metaphorically imply voice or words, viz., to spread an opinion via utterances and words to an audience. According to Peters (2006, pp. 211-222), 'The metaphor of dissemination points to the contingency of all words and deeds, their uncertain consequences, and their governance by probabilities rather than certainties'. In this sense, *Zhenlafengtuji* as an account of thirteenth century Angkor Empire fits in the connotation of cultural dissemination theoretically.

On the other hand, 'location matters' is the central tenet of geography in the understanding of processes and phenomena of various variety. In fact, geographers additionally focus on space and time in these relationships. In such concern, the geographers are enabled to probe into abstract complexities of places and processes relative to other disciplines (National Research Council, 1997).

In Sanskrit, 'Mandala' means circle. Vijigishu, or the king, is located at the center of this circle. Rajamandala thus translates 'circle of kings'. The Rajamandala theory was first raised by Kautilya (or Chanakya) in his *Arthashastra* (322-298 BC). *Arthashastra* is a 2,300-year-old Sanskrit treatise on 'all aspects of international relations, intelligence and good governance consists of four principal types of states. Each of these states has an ally and ally's ally thus making 12 kings and 60 types of combinations called material constituents.

This together combines into the total 72 elements of Raja Mandala' (Mishra, 2012).

Rajamandala theory is based on the speculation that 'the immediate neighbor state is most likely to be an enemy (real or potential) and a state next to the immediate neighbor is likely to be one's friend, after a friendly state comes an unfriendly state (friend of the enemy state) and next to that a friendly state (friend of a friendly state) and so on' (Mishra, 2012).

Drawing inspiration from Rajamandala theory, Sharma (2019) examined its strategic thought and interstate relations in its entirety as a theory of peace and war, and their importance in the conduct of interstate relations; the United States was suggested to adapt the ancient Indian geopolitical concept of the Rajamandala (ruler circle) in its foreign policy toward Pakistan (Cappelli, 2007) and the use of Rajamandala approach is thought to make India 'an agile and a skillful player of all the great games in progress, for the one end of furthering its own interests' (Ojha, 2016).

## RESEARCH METHOD

Attributed to the non-existence of sample group alike in space and time, qualitative approach is administered in this study. That said, discussions and interpretations in this investigation are based mainly on the texts and contents of *Zhenlafengtuji* and relevant documentations accessible in bid to reach the closest core of truth in the annals. Shedding light from the adapted framework, the eighteen subsections, namely, (1) Overview, (2) Walled-city, (3) Customs, (4) Language, (5) Hill People, (6) Calendar and Time Sequence, (7) Death and Funeral, (8) Farming, (9) Mountains and Rivers, (10) Exports, (11) Trading, (12) Animals, (13) Fish and Shellfish, (14) Sericulture, (15) Utensils, (16) Ships and Boats, (17) Bathing, and (18) Chinese Immigrants thought to be correlated with geography in *Zhenlafengtuji* proposed by Chen (陈正祥, 1982, p. 1) are selectively analyzed and duly treated. In essence requisite to length constraint, only *Hill People* (Subsection 12), *Farming* (Subsection 18), *Mountains and Rivers* (Subsection 19), *Trading* (Subsection 21), and *Sericulture* (Subsection 30) are treated in this investigation.

## RESULTS AND DISCUSSIONS

To begin with, Zhou Dagan's *Zhenlafengtuji* is divided into five sections with 41 subsections. These subsections cover the Angkorians' culture in the thirteenth century thus exhibiting the glory and spectacles of the kingdom intact:

Section One: (1) Overview, (2) Walled-city, (3) Palace, (4) Costumes, (5) Officials, (6) Religions, (7) People, (8) Pu-erperal Women;

Section Two: (9) Daughters Coming of Age, (10) Slaves and Maids, (11) Language, (12) Hill People, (13) Writing Scripts, (14) Calendar and Time Sequence, (15) Disputes and Arguments, (16) Disease and Leprosy, (17) Death and Funeral;

Section Three: (18) Farming, (19) Mountains and Rivers, (20) Exports, (21) Trading, (22) Imports from China, (23) Trees and Plants, (24) Birds, (25) Animals;

Section Four: (26) Vegetables, (27) Fish and Shellfish, (28) Wine-making, (29) Seasonings, (30) Sericulture, (31) Utensils, (32) Palanquins and Carriages, (33) Ships and Boats; and

Section Five: (34) Vassals and Counties, (35) Villages, (36) Human Bile Collection, (37) Rumors and Anecdotes, (38) Bathing, (39) Chinese Immigrants, (40) Cavalry, (41) Royal Progress.

In Zhou's book, evidences of superior attitude of the Celestial Empire are underpinned in Section One, Two, Three and Five conjointly. It in actual fact is semantically readable from the way the texts are constructed. Take for instance, in Table 1A, 'The Celestial Empire proclaims its power bestowed heavenly and thus believing the entire world under its sole dominance'; 1B, 'There are a handful of sorcerers performing healing rituals for the leprous patients which to me is nonsensical'; 1C, 'Some women urinate while standing, how ridiculous it is!'; and 1D, 'Conclusive from all accounts, it is obvious though *Zhenla* is an uncivilized and barbaric country, its subjects are cognizant of the obligation to respect their king'.

However, 'much to their surprise' (Table 1A), despite anticipating to accept the allegiance of vassalage, two *Yuan* generals sent to the Khmer kingdom were instead imprisoned.

## CULTURAL CONTRIBUTIONS OF ZHENLAFENGTUJI

Through the cultural accounts of Zhou—selective it may be in documenting—the life of thirteenth century Angkorians can be reconstructed:

There are guards for the walled-city entrances, merely dogs are not allowed in. The capital is in a square shape and stone tower is built on each of the four corners of the walled-city. In the middle of the capital, there is a golden tower (Bayon Temple). The palace and officials' mansions are all built facing East. The wooden palace is located north of the golden tower and golden bridge...

Only females are allowed to dye their hands red. Flora designs clothing can only be used by the king and his officials and women. Inclusive of the king, all Angkorians tie their hair in topknot and expose their breast or bosoms. Angkorians wear only a piece of cloth around their waist. When they go out, another larger piece of cloth is added to overlap the existing one. Whenever any important decisions are to make, the king will seek advice from prodigious Buddhist monks. No Buddhist nuns are found in the kingdom. Taoist monks are neither allowed to eat others' food nor let others see them eating. Alcohol is strictly not allowed for monks. There are Taoist nuns...when boys are still young, they will be sent to the temples to learn and later rejoin the society upon adulthood... The king has five wives (to represent central, north, south, east and west respectively) apart from three to five thousand concubines and a sizeable number of maids...

When daughters are coming of age (9 to 11 years old), monks are paid to bless (copulate with) them for womanhood, and feasts are held to entertain relatives. The

**Table 1.** Evidences of Superior Attitude

Original Scripts	English Translation
A. 天朝自认皇权天授，全世界都它的。命令驻守占城的唆都元帅派了两位中高阶军官前往吴哥。然而吴哥国主居然把两个人抓走不放回来。（第一集：总叙）	The Celestial Empire proclaims its power bestowed heavenly and thus believing the entire world under its sole dominance. <i>Yuan</i> Marshal Sügetü (唆都/ $\text{ᠰᠦᠭᠡᠲᠦ}$ ) garrisoned at <i>Champa</i> was commissioned to send two generals of different ranks to the Angkor kingdom; yet they were imprisoned by the Angkor king much to their surprise. (Section One: Overview)
B. 更有一等师巫之属，与人行持，尤为可笑。（第二集：病癩）	There are a handful of sorcerers performing healing rituals for the leprous patients which to me is nonsensical. (Section Two: Diseases and Leprosy)
C. 妇女亦有立而溺者，可笑可笑。（第三集：耕種）	Some women urinate while standing, how ridiculous it is! (Section Three: Farming)
D. 以此观之，则虽蛮貊之邦，未尝不知有君也。（第五集：国主出入）	Conclusive from all accounts, it is obvious though <i>Zhenla</i> is an uncivilized and barbaric country, its subjects are cognizant of the obligation to respect their king. (Section Five: Royal Progress) –Translated by author

scale of the feast is dependent on one's wealth. After the blessing ritual, daughters are allowed to sleep alone. Before that, they must sleep in their parents' company... Temples are functioned as schools. A white string is tied round the neck of learners in the temples to distinguish them from others and this string must stay until they perish. Learners write on parchments with white clay bar. Any arguments or disputes arising from the members of the public must be reported to the king for verdict despite a trivial one. Brutal tortures and corporal punishments are administered in the process of judgment and verdict. Leprous patients can be seen everywhere; yet they eat and reside with the general public undiscriminated. Corpses are carried to remote areas and left to decompose or be devoured by wild animals or birds. Formerly, Angkorians were humble and they respected Chinese from China. They called Chinese 'Buddha', lying prostrate to greet them. Of late, when more Chinese set foot on their soil, they begin to cheat and bully them. In Angkor, wine-making is not prohibited. Coastal regions... are where salt is produced. They make wine with honey, leaves, unfinished rice and palm sugar. In the mountains, there is one type of stone which tastes better than salt and can also be carved into utensils. The road network is built by the empire in order to monitor all its territories for the military force to reach every corner fast. There is a temple or pagoda in every village. Officials are only stationed in populous villages. Ships are made of boards from hard wood. Since the local carpenters do not have saws, hatchets are used instead to axe out the boards of wood... For small boats, a tree trunk is firstly flattened and then the hollow part for sitting is chiseled out slowly. Later the hollow is softened by burning and blocks of wood are used to stretch it bigger. Every August, human bile will be collected as the Kingdom of Champa asks for an earthen jar of human bile, which is equal to over a thousand of them. At night, men will be sent to collect human bile in every corner of the state. Loops are used to collar night walkers and dagger is employed to stab on their right waist for bile. When the number is reached, the jar of bile will be tributed to the king of Champa.

*Zhenla* is a scorching country. One cannot live without taking several baths each day due to the sweltering heat. Even at night, one has to bathe a couple of times. Initially, there was no bathroom or buckets, yet each home must have a bathing pond, or a few families jointly built one. Men and women bathe together. But when elders are bathing in the pond, the young are not allowed and vice versa. This practice does not apply to peers, only that they must cover their private parts with their left hand. –Translated by author.

In terms of efficiency and productivity, Zhou has his attitude engaged on the Angkorians: 'Since the local carpenters do not have saws, hatchets are used instead to axe out the boards of wood. The process is a waste of raw materials and man power and it progresses very slowly' (Section Four, Ships and Boats: 匠者无锯，但以斧凿之，开成版；既费木，且费工，甚拙也); and 'I heard that when they stage battles with Siam, untrained folks are driven to fight at the warfront and inevitably no military strategies and tactics can be anticipated (Section Five, Cavalry: 据说他们和暹罗人打仗，都是驱赶寻常百姓去打，也没有什么战术谋略可言).

Documentarily, the human bile collection reported in *Zhenlafengtuji* is elsewhere reported in *Boxer Codex* (Souza & Turley, 2016, p. 680) and the *Bulletin de l'Ecole Franraise d'Extreme-Orient* (BEFEO, Vol II, 1902, p. 172). This bile collection (around one thousand human lives for a full earthen jar) collected from whomever met on the road at night in August, was a tribute to the Champa kingdom (located in today's Vietnam). It was a favor seeking gesture from Champa to neutralize the sporadic military campaigns of expanding Siam. The wars between the Angkor Empire and Siam were lined in Section Five (Villages) of Zhou's *Zhenlafengtuji*: 'Since there are ongoing battles with Siam, many rest booths built for travelers flanking the main roads are demolished into flatlands' (因屡与暹人交兵，遂至皆成旷地).

Besides the ordinaries, Zhou also noted that the Angkor king had to climb atop the Phimeanakas monument nightly to meet 'nāgī' (a female snake divinity in Buddhism and Hinduism) in the form of a beautiful woman between 9 pm to 11 pm. It was so believed disaster would befall to the kingdom if the divinity did not appear; whereas if the king

did not show up for the tryst, grim reaper would take him at once. Further, when Angkorians were interrogated for the founders of Angkor Wat, Mouhot (2014) the French explorer wrote, “you invariably receive one of these four replies: ‘It is the work of Pra-Eun, the king of the angels’; ‘It is the work of the giants; It was built by the leprous king’; or else, ‘It made itself’ (Mouhot, 2014, p. 280)”. As far as one can tell, these interesting scenarios factually generate human lust or extra-terrestrial associations, unanswerable though they may be in the end.

## GEOGRAPHIC CONTRIBUTIONS OF ZHENLAFENGTUJI

At the outset, the development of the human geographies in China owed the illustrations of fabulous types of peoples found in *Shan Hai Jing*<sup>2</sup> (山海经). It was normal for tribute-bearers from abroad to attend *Hung Lu* (鴻馱) where the Chinese officials recorded the geography and customs of their countries as partial government intelligence in the *Tang* (唐) and other dynasties which eventually produced numerous books (Needham & Wang, 2005, p. 508). Today, an enormous geographical literature of ancient foreign countries still exists in China for worldwide reference.

Before all else, the production of geographical writings in ancient China was greatly intensified in the *Tang* era—particularly on India—when interactions with other nations was widespread. Yet during the *Song* (宋), this type of writings did not grow in Europe; good parallels can only be spotted in Renaissance Europe, that is, in the *Ming* (明) dynasty (Needham & Wang, 2005, p. 520).

In point of fact, the contemporary westerners were no match for the Chinese geographers between the *Han* (漢) and the *Tang* but only the Arabs during the *Song*. The West managed to prosper considerably ahead merely with the *Ming* decadence and the rise of modern science in Europe. Unfortunately, the authors of all these arresting ancient China records were mainly incidental official travelers. As an aside, notes of greater scientific value were those with geographical motives (Needham & Wang, 2005, pp. 521-523).

In ancient China, outstanding geographers and explorers are rife; to name just a few: Pei Xiu (裴秀, 224-271), the first to outline and analyze the advancements of cartography, surveying and mathematics up until his time; Li Daoyuan (酈道元, 466 or 472-527), the first to vastly expand *Shan Hai Jing*, doing his own research and fieldwork. Li also authored *Shui Jing Zhu*<sup>3</sup> (水经注, *Commentaries on the Water Classic*) in which he discussed 1,252 watercourses with maps and described the rivers and streams along with the history, geography and culture of the neighboring regions; Shen Kuo (沈括, 1031-1095), the first to describe the magnetic needle compass, which was used for navigation later; and Xu Xiake (徐霞客, 1587-1641), the first to tour throughout China to write his enormous geographical and topographical treatise.

As a matter of fact, themes correlate with geography in *Zhenlafengtuj* can be found in these subsections: (1) Overview, (2) Walled-city, (3) Customs, (4) Language, (5) Hill People, (6) Calendar and Time Sequence, (7) Death and Funeral, (8) Farming, (9) Mountains and Rivers, (10) Exports,

(11) Trading, (12) Animals, (13) Fish and Shellfish, (14) Sericulture, (15) Utensils, (16) Boats, (17) Bathing, and (18) Chinese Immigrants (陈正祥/Chen, 1982, p. 1).

However, due to length constraint, merely *Hill People* (Subsection 12, Table 2), *Farming* (Subsection 18, Table 3), *Mountains and Rivers* (Subsection 19, Table 5), *Trading* (Subsection 21, Table 6), and *Sericulture* (Subsection 30, Table 7) are discretionarily discussed in turn in the forthcoming.

Anthro-geographically, Khmer-versed hill people were slaved, despised and used as maids and laborers by the rich in the Angkor city; whereas the Khmer-unversed lived a primitive life and were left to their own device. It is also informed that anyone who had copulated or close physical relationship with the hill people would be loathed and avoided explicitly. Nonetheless, through Mouhot's (2014) eyes, the hill people six centuries later are described as such:

These savages are so strongly attached to their forests and mountains that to quit them seems almost like death, and those who are dragged as slaves to the neighboring countries languish under captivity and try every method of escape, frequently with success. Like other savages, they have appeared formidable to their neighbors, and the fear inspired by them has occasioned exaggerated reports of their wonderful skill in shooting with the bow, as well as of the pestilential climate... These people love the deep shade of the pathless woods, which they do not trouble themselves to cut down; but if they cling to their country, they do not to any particular locality, for if they meet with any inconvenience in their neighborhood, or if any of their family die of fever, they raise their camp, take their children in baskets on their backs, and set off to make a settlement elsewhere; land is not wanting, and the forest everywhere alike (Mouhot, 2014, p. 243).

In the subsection *Farming*, climate, irrigation, land use, harvest, seasons and the unique growing phenomenon of floating rice in thirteenth century Angkor are reported. In fact, before Zhou Dagan reached the kingdom, deep water rice (floating rice/*oryza sativa*) being a native crop had since been grown which refutes the importation speculation of the variety (陈正祥/Chen, 1982, pp. 2-3).

In Cambodia, there are only two seasons, namely, the wet and the dry seasons. The wet season begins from July to November and the dry season arrives when the wet season ends. It was obvious the Khmer farmers migrated observing the rise and fall of the water level of Lake Tonle Sap. Rice seeds would be sowed soon after the wet season and the rice fields were harvested before the drought began. There was another type of paddy which grew naturally when the normal rice fields were out of season. They could grow as high as the water level and was believed another rice variety (floating rice?).

Comparatively, Mouhot's (2014) accounts of the savage Stiëns (Mouhot's term) or hill people's manner of preparing rice fields after residing for nearly three months with them in the nineteenth century is otherwise informative:

Their manner of preparing a rice-field is very different from the way in which our agriculturists set about matters. As soon as the first rains begin to fall, the Stiëns chooses his ground, and busies himself in clearing it.

**Table 2. Hill People** (Subsection 12)

Original Scripts	English Translation
野人有二种：有一等通往来话言之野人，乃卖与城间为奴之类是也；有一等不属教化，不通言语之野人，此辈皆无家可居，但领其家属巡行于山，头戴一瓦盆而走。遇有野兽，以弧矢鏢枪射而得之，乃击火于石，共烹食而去。其性甚狠，其药甚毒，同党中常自相杀戮。	There are two types of hill people: One of these are versed in the Khmer language and sold to the rich as slaves in the city; whereas the others are uneducated and unversed in the language. The second type are homeless and live in the forest with their family; they walk with an earthen basin positioned on their head. When they come across wild animals, they kill them with arrows or javelins. They use flint to produce fire for cooking. Moreover, they are ruthless, use noxious poisons and are fratricidal. –Translated by author

**Table 3. Farming** (Subsection 18)

Original Scripts	English Translation
大抵一岁中，可三四番收种。盖四时常如五六月天，且不识霜雪故也。其地半年有雨，半年绝无。自四月至九月，每日下雨，午后方下。淡水洋中水痕高可七八丈，巨树尽没，仅留一杪耳。人家滨水而居者，皆移入山后。十月至三月，点雨绝无。洋中仅可通小舟，深处不过三五尺，人家又复移下，耕种者指至何时稻熟，是时水可滄至何处，随其地而播种之。耕不用牛，耒耜镰锄之器，虽稍相类，而制自不同。又有一等野田，不种常生，水高至一丈，而稻亦与之俱高，想别一种也……	Generally, there are 3 to 4 times' annual rice harvest. Since the weather in this region annually is like that of lunar fifth and sixth month of China, the locals have not the least inkling of frost and snow. Half of the year in this area is the wet season; whereas the second half is the dry season. From the lunar fourth to sixth month (May to October), it rains every day, usually in the afternoon. From November to April, not even a drop of water is seen. The water level in Lake Tonle Sap is shallow with the deepest not exceeding three to five <i>chi</i> (尺) thus only small boats can be rowed across. Migrated locals will then move from the mountain down here for rice planting ground. The farmers know when the rice will ripe, where the land will be submerged and so they grow rice responsive to the terrain. They do not use buffaloes in farming. They have tools like ploughs, rakes, scythes and hoes but they are made in a rather different way. There is another native crop which grows naturally when rice planting is out of season. They can grow as tall as the water level at high tide up to ten <i>chi</i> which I believe is another water rice variety... –Translated by author

**Table 4. Monthly Temperature and Precipitation in Siem Reap, 1982\***

	Jan	Feb	Mar	Apr	May	Jun	Entire Year
Temperature (Celsius)	24.7	26.4	28.2	28.7	28.1	27.5	
Precipitation (mm)	3	11	27	62	140	175	
	Jul	Aug	Sep	Oct	Nov	Dec	
Temperature (Celsius)	27.1	27.2	26.6	26.5	25.7	23.9	26.7
Precipitation (mm)	202	207	267	243	83	13	1433

\*Adapted from Chen (陈正祥, 1982, p. 2)

This would be a laborious task for a European; but he, with his hatchet with cane handle, has in a few days cut down a thicket of bamboos 100 or 150 meters square. If he meets with any tree too large for him to manage, he leaves it standing. After a few days, when the canes are a little dry, he sets fire to them, and the field is soon cleared. As for the roots, he cares little about them, as no digging is required; on this virgin soil everything grows with little labor. There only remains to sow the seed, and for this purpose he takes two long bamboos, which he lays in a line on the ground; then, with a stick in each hand, he makes on each side of this line holes about an inch or an inch and a half deep at short distances. The man's work is now finished, and that of the woman begins: stooping down, she follows the line traced by her husband, and from a basket carried at her left side takes a handful of rice, of which she throws a few grains into each hole with great rapidity, and at the same time so dexterously that it

is rare for any to fall outside. In a few hours the task is finished, for here there is no need of harrow or plough; kind Nature will soon send some violent showers, which, washing the soil over the holes, will cover the seeds...

The harvest is reaped at the end of October. Generally, two months previously poverty and famine begin to make themselves felt (Mouhot, 2014, pp. 246-248).

Weatherwise, in 1982 as seen in Table 4, the average temperature for Siem Reap (where Angkor Wat located) was 26.7° C with the highest noted in April (28.7° C) and it had a yearly precipitation of 1433 mm. During the wet season, that is, from July to November, the water level was relatively high (83-267 mm) with the highest recorded in September (267 mm); whereas from December to June the following year, it had a rather low precipitation, viz., from 3 to 175 mm (陈正祥/Chen, 1982, p. 2).

From the website CLIMATE-DATA.ORG (2021) thirty-nine years later, the average annual temperature in Siem

**Table 5. Mountains and Rivers** (Subsection 19)

Original Scripts	English Translation
自入真蒲以来，率多平林丛木，长江巨港，绵亘数百里。古树修藤，森阴蒙翳，禽兽之声，杂沓于其间。至半港而始见有旷田，绝无寸木，弥望芄芄禾黍而已。野牛以千百成羣，聚于其地。又有竹坡，亦绵亘数百里。其竹节间相生刺，笋味至苦。四畔皆有高山。	Ever since we made an entry from Zhenpu (former Cambodia territory located at southern Vietnam) to Angkor, a stretch of lush bushes, endless flowing rivers and huge ports stretching for hundred <i>li</i> (哩) can be seen. Rattans are entangling the old trees which overshadow the region, let alone the howls and roars of wild animals. After we have sailed for some time, an open flatland without any plants stands before us. Yet we only find maize and millet grown here. Herds of wild buffaloes are gathered in big groups on the plains. There are also bamboed hills swathing hundreds of miles. Here the bamboos grow alternatively and bitter-taste thorny bamboo shoots are the produces. This region is surrounded by high hills. –Translated by author

**Table 6. Trading** (Subsection 21)

Original Scripts	English Translation
国人交易皆妇人能之，所以唐人到彼，必先纳一妇人者，兼亦利其能买卖故也。每日一墟，自卯至午即罢。无铺店，但以蓬席之类铺于地间，各有常处，闻亦有纳官司赁地钱。小交关则用米谷及唐货，次则用布；若乃大交关，则用金银矣。	Women are generally those who excel in trading in the Empire. Therefore, whenever male Chinese reached the kingdom, they would immediately wed with local women believing they were good traders. Bazaar is operating on a daily basis, from 5-7am until 11-1pm. No shops are seen; the traders spread mats on the floor to display their commodities and each lot is pre-fixed. I heard that some traders also pay a rent to the authority. Small transactions will be bartered with rice, goods imported from China or clothes. Gold and silver would be used for big business deals. –Translated by author

**Table 7. Sericulture** (Subsection 30)

Original Scripts	English Translation
土人皆不事蚕桑，妇人亦不晓针线缝补之事，仅能织木绵布而已。亦不能纺，但以手捏成条。无机杼以织，但以一头缚腰，一头搭窗上。梭亦止用一竹管。 近年暹人来居，却以蚕桑为业。桑种蚕种，皆自暹中来。……暹人却以丝自织皂绫衣着，暹妇却能缝补。土人打布损破，皆倩其补之。	The locals do not rear silkworms to weave clothes. Women here know nothing about sewing and knitting but only cotton cloth weaving. They know how to twist the cotton into threads yet do not have weaving machine. In fact, they weave cloth by tying one end of the cotton threads on their waists and the other on the window frame and use merely one bamboed shuttle. Of late, there are immigrants from Siam who grow mulberry trees and rear silkworms; these mulberry treelets are imported from Siam. Siamese wear their home-produced silk cloth and most Siamese women can weave and sew. Angkorians would ask Siamese women to mend their worn clothes for them. –Translated by author

Reap is 27.7 °C and about 1358 mm of precipitation falls annually. The highest temperature in Siem Reap is similarly recorded in April (29.7° C) while the lowest in December (25.7° C) respectively; whereas the highest precipitation is collected in September (254 mm) and the lowest extends from December to February (17, 10 and 15 mm). From both figures obtained in 1982 and 2021, despite a rise of one degree Celsius and a fall of 13 mm in precipitation, it is consistent that in Siem Reap April has the highest temperature and September gets the highest waterfall annually.

Physically, at the outskirts of Angkor Empire, there were rivers and dense forests like any other tropical countries. Sea docks stretching over hundred *li* were spotted. Primitive jungles with rattans entangling tall old trees and wild animal howling and roaring were witnessed and heard. Later Zhou saw maize and millet fields with herds of buffaloes gathering in groups. Soon, bamboos which produced bitter-taste thorny shoots came into sight and the region was bowled by

high hills. From the descriptions, we came to realize that the crops grown here besides rice were maize and millet with lots of inherently-grown bamboos.

Economically, bazaar was open daily, from early morning around 5 am to 1 pm in the afternoon. The locals traded their commodities and produces in the bazaar. For small transactions, rice and imported goods from China were used to exchange; whereas for big business deals, gold and silver were involved. Surprisingly, female businesswomen dominated the bazaar and they were thought to excel in business in the empire. Therefore, it is fair to say that women contributed comparatively more in Angkorian economy. As such, male immigrants from China would make it a priority to marry an Angkorian woman when they reached this new territory.

Socio-geographically, sericulture was not popular in the Angkor kingdom. Yet the locals knew how to twist cotton into threads to eventually weave them into cloth though their device was primitive to Zhou. Silkworms and mulberry trees were

brought in by Siam immigrants and since then sericulture was introduced. When cloth was torn, the Angkorians would ask the dexterous Siamese women to mend and patch up for them.

## CONCLUSION

Drawing findings derived from the foregoing discussions, some fine points are summarized. Zhou Dagan's *Zhenlafengtuji* functions as cultural dissemination in that it not only discretionarily records and exhibits the life of Angkorians from the view point of a Yuan-era contemporary, but also indirectly displays the thirteenth-century Angkorian culture to the world. Additionally, from the geographical perspective, *Zhenlafengtuji* showcases the human geography of the Khmer Empire which is helpful in the restoration and reconstruction of Angkor geography.

The cultural dissemination of *Zhenlafengtuji* exceeding two hundred years which began soon after its first French translation in 1819 indeed bear seminal dynamics to the world. From the aspect of globalization, it shortens the physical distance and expand the imaginative scope between thirteenth-century Angkorians and the modern world. The accounts, if truth be told, not only re-exhibit the lost civilization to the later generations, but also piece out the historical chronology as well as displaying its spectacles and glories in the measurable past.

Culturally, the societal pattern of the Angkor was exhibited in *Zhenlafengtuji* to add on yet another variety in world geography. Exotic it is to Zhou and westerners alike, this societal pattern is a partial component of the diverse world once surviving side by side with the rest of the globe. Notwithstanding Zhou Dagan's unwitting superior attitude casts on the Thirteenth century Empire, this society is unique and dynamic in its own right.

Geographically, the Angkor Empire was located on a piece of land surrounded by high hills, rivers and jungles with abundant rice, maize and millet plantations and herds of buffaloes occupying the plains. Local farmers migrate in accordance with the rising and falling tide of Lake Tonle Sap and sow rice seeds on selected ground when the wet season begins. They harvest before the arrival of the dry season. Due to the inherent floating rice variety which begs no attention in its growth, Angkorians also additionally harvest the deep-water rice; that is to say, they harvest 3-4 times annually, translating sufficient food for the entire empire. In fact, recent investigations also reveal Angkorians actually made use of reservoir for irrigation, let alone accessing water from Lake Tonle Sap.

Socially, Rich and elite Angkorians owned slaves and despised having close relationship with hill people just like many other developed societies of the world. What is stereotype busting being, female Angkorians are skillful in business and they monitor the bazaars exchanging daily necessities and trading with gold and silver which defies the general practice of male-dominated society. However, women in the Angkor Empire had not learned the skill of mending torn cloth and did not have weaving machine and the knowledge of sericulture.

One unreasonable episode being, albeit leprosy was about in the thirteenth-century Khmer Empire informed

by Zhou, it was not heeded much by the general public. Could it be attributed to ignorance or the practice of tolerance and fate resigning mentality in the society resulted from the conversion of Buddhism by king Jayavarman VII? As for whether Angkor Wat has been functioning as a Buddhist temple after the decline of the kingdom thus far, present day excavations on the other hand, likewise revealed the very fact that Angkorians did not leave Angkor Wat to rot as speculated after the Siam invasion.

Briefly, we owed much to Zhou Dagan's cultural dissemination in bringing to light that thirteenth-century Angkor Empire was a dynamic society with geographic abundance, including unexplainable highly developed infrastructures and complex structured temples though its subjects might seem unparalleled relatively.

## END NOTES

1. A ground-penetrating radar (GPR) contains a transmitting and a receiving antenna to send and detect electromagnetic waves at given frequencies to detect electromagnetic contrasts in the soil.
2. *Shan Hai Jing*, otherwise known as *The Classic of Mountains and Seas*, is an authorless Chinese classic text which has existed since the 4<sup>th</sup> century BC in various versions. Its present form was not finalized until the early Han dynasty. It is a book of mythic geography and beasts divided into eighteen sections depicting over 550 mountains and 300 channels.
3. *Shui Jing Zhu (Commentaries on the Water Classic)* compiled by Li Daoyuan during the Northern Wei dynasty (北魏386-534 AD), is a book on ancient Chinese geography. It is divided into sections by river portraying with its source, course, and major tributaries, as well as cultural and historical records.

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