religions

Special Issue Reprint

Digital and Spatial Studies of Religions

Edited by
Zhaohui Hong

www.mdpi.com/journal/religions

MDPI

Digital and Spatial Studies of Religions

Digital and Spatial Studies of Religions

Editor

Zhaohui Hong

MDPI • Basel • Beijing • Wuhan • Barcelona • Belgrade • Manchester • Tokyo • Cluj • Tianjin

Editor
Zhaohui Hong
Fordham University
Bronx
NY
USA

Editorial Office
MDPI
St. Alban-Anlage 66
4052 Basel, Switzerland

This is a reprint of articles from the Special Issue published online in the open access journal *Religions* (ISSN 2077-1444) (available at: https://www.mdpi.com/journal/religions/special_issues/DigitalandSpatial_Religions).

For citation purposes, cite each article independently as indicated on the article page online and as indicated below:

LastName, A.A.; LastName, B.B.; LastName, C.C. Article Title. *Journal Name* **Year**, *Volume Number*, Page Range.

ISBN 978-3-0365-7800-2 (Hbk)
ISBN 978-3-0365-7801-9 (PDF)

Contents

About the Editor

Zhaohui Hong

Dr. Zhaohui Hong is a professor at the Graduate School of Religion and Religious Education at Fordham University, USA. Dr. Hong's research interests include the digital and spatial studies of Chinese religious sites, Christianity in China, the shortage of churches, and economic history.

Preface to "Digital and Spatial Studies of Religions"

My journey into the realm of the digital and spatial studies of religions began in 2011, when I was a PI, along with Dr. Fenggang Yang from Purdue University and Dr. Shuming Bao from the University of Michigan, receiving a generous grant of USD 300,000 from the Henry Luce Foundation. This funding, supplemented by an additional USD 400,000 during Phase II of our research between 2014 and 2017, allowed us to establish a Spatial Information Network for the Study of Christianity in China. Our goal was to advance research, teaching, learning and training on the studies of Chinese Christianity by developing a spatial information platform that leveraged spatial intelligence technology. This project aimed to integrate diverse data from various sources and formats into a unified system, enabling the creation of dynamic maps and facilitating geospatial analysis. Through the integration of social, economic, demographic, religious and geographical information, we sought to gain new insights into Christianity and its societal impact in China. As a result of this project, I collaborated with my graduate students at Purdue University Northwest and published 12 research articles focusing on the shortage of religious sites in China.

The field of digital and spatial studies of religions has emerged as a prominent research area over the past two decades. This "spatial turn" has reverberated throughout the humanities and social sciences, and digital and spatial perspectives now occupy a central position within religious studies. However, while numerous research endeavors have contributed to the study of religions through digital and spatial lenses, they often lack integrated and synergized connections between digitalization and visualization in religious studies.

Therefore, the purpose of this edited book, stemming from a Special Issue of the academic journal *Religions*, is to foster and promote both digital and spatial studies of religions through interdisciplinary and multidisciplinary perspectives. We welcomed contributions encompassing all historical periods, regions and religions. Collectively, this book demonstrates that digital and spatial studies offer unique and constructive approaches to discovering, developing and delivering insights into the study of religion that may have remained undiscovered or unaddressed through conventional research methodologies.

I am delighted to present this book that explores and reveals the fascinating intersection between digital and spatial inquiries in the field of religious studies. The essays compiled here shed light on various religious traditions and their spatial dynamics, providing valuable insights into the intricate relationship between belief systems, cultural integration and geographic spaces. In an effort to supplement the current digital humanities scholarship in general, and spatial studies of religions in particular, this book presents a collection of theoretical and applied research papers focusing on religious sites in China. Divided into three sections, it covers a broad range of topics and approaches.

The first section explores the general aspects of digital studies of religions. Through spatial analysis and GIS modeling of the distribution of religious sites in Greater China, Jiang Wu introduces the concept of regional religious systems (RRSs), offering a novel framework for understanding and studying the spatial distribution patterns of religious sites and their interconnectedness with social and cultural factors. Kirk Bingaman examines how digital technology is fundamentally reshaping the human experience, particularly in the realm of religion and spirituality, presenting a paradigm shift and an "irreversible process with seismic implications for the lives of "digital natives" who have grown up in an Internet-dominated world. In addition, Meng Cao investigates the strategies employed by popular and institutional religions, such as Buddhism and Daoism, to navigate state regulations in China.

The second part of this book delves into spatial studies focusing on Buddhist and Islamic sites. Jinchao Zhao employs a network analysis approach to visualize and analyze the spatial arrangement of Buddhist images on the surfaces of pagodas in the Shanxi Province, China. Jeffrey Liu and Ziling Wan, on the other hand, utilize local sources to examine the spatial distribution of Buddhist sites in Hangzhou, China, during the Southern Song dynasty (1127–1279). Additionally, Shuanggiao Meng and Peining Li investigate the cultural integration of Indian and Chinese Buddhist arts within the Shandong Peninsula during the Northern Qi Dynasty (550–577). Furthermore, Shangguang Wu and four other authors explore the spatial differences in the distribution of mosques, reflecting the diverse interaction between natural and human elements and Islamic beliefs in the Kashgar region of Xinjiang, China.

The final section of the book brings attention to folk religions in the digital age. Yu Han examines the widely known and believed folk belief of the God of Happiness among the Chinese populace. Drawing on spatial studies of religions and a comprehensive understanding of dynamic space, Han compares and analyzes materials from historical documents, folktales and the practice of sacrifice to the God of Happiness. Yizhen Shi and Xiaoyan Wang employ GIS to visualize relics from tomb murals and analyze their density values. Lastly, Yuqing Liu and Xiaoyan Wang probe the digital exploration of various Gods and other Water Deities in the Pearl River Delta in China. They employ GIS to reconstruct the spatiotemporal evolution of local beliefs, utilizing temple records and quantitative analysis.

This book is particularly relevant for college students and graduate students in digital humanities, religious studies and studies on China. It also serves as a valuable reference for scholars in the fields of religion, history, cultural studies and global studies. The authors have contributed ten outstanding papers that exemplify the depth and breadth of research in this multidisciplinary and interdisciplinary field.

I would like to express my heartfelt gratitude to *Religions* for extending the invitation to edit this Special Issue on digital and spatial studies of religions from 2022 to 2023. I am also indebted to Professors Huaiyu Chen, Fenggang Yang and Yi Sun for their invaluable advice and suggestions, which have greatly enhanced the quality of this publication. Finally, I extend my sincere appreciation to all the authors who have contributed their exceptional scholarship to this book.

The study of digital and spatial aspects of religion requires the collaborative efforts of humanities, social scientists and data science specialists. It is my hope that this collection will inspire further exploration and dialogue in this exciting and rapidly evolving field.

Zhaohui Hong
Editor

religions

MDPI

Article

Spatial Characteristics and the Non-Hierarchical Nature of Regional Religious Systems (RRSs)

Jiang Wu

Center for Buddhist Studies, Department of East Asian Studies, College of Humanities, The University of Arizona, Tucson, AZ 85721, USA; jiangwu@arizona.edu

Abstract: Based on the spatial analysis and GIS modeling of the distribution of religious sites in Greater China, we have developed the concept of regional religious systems (RRSs) as a novel way of understanding and studying the spatial distribution patterns of religious sites and their relationship with other social and cultural factors. This essay further explores theoretical issues such as its center–periphery relations in existing administrative and economical hierarchies. Drawing on our current project on RRSs in the Hangzhou region and various available studies about pre-modern Chinese religion, the author explains the spatial characteristics of RRSs, such as the role of transportation, trade and pilgrimage routes in the formation of RRSs. Using Chinese Buddhism as an example, the author argues that RRSs in Greater China should be treated as a spatial formation without an internal hierarchical structure because the political and administrative hierarchy prevents the formation of a strong religious hierarchy.

Keywords: regional religious systems; center–periphery relationship; William Skinner; macro-region; hierarchy; administrative system; economic system; Greater China

1. Introduction

The concept of regional religious systems (RRSs) is a novel way of understanding and studying the spatial distribution pattern of religious sites and their relationship with other social and cultural factors. In our previous studies (Wu et al. 2013; Wu 2022), our team has developed this concept and conducted research on various religious traditions in different regions based on the spatial analysis and GIS modeling of the distribution of religious sites in Greater China. To summarize, we determined a preliminary definition as follows:

> A regional religious system is a type of spatial formation in which a group of related or unrelated religious institutions are conditioned by physical, geographical, administrative, cultural, or socioeconomic systems and are highly dependent on regionally and locally distributed variables such as population, economy, transportation, education, culture, ethnicity, language, etc.
>
> (Wu et al. 2013, p. 182)

This tentative definition serves as a loosely defined working definition to accommodate various attempts to study the spatial formation of religious phenomena identified regionally and locally. It emphasizes the relations in which the RRS is situated. According to our study, RRSs are basically a spatial formation characterized by the geographical distribution of religious sites. The formation of RRSs is shaped by regional systems such as William Skinner's macroregions. Additionally, the distribution of these sites relies on regionally and locally distributed factors. In our recent edited volume, *The Formation of Regional Religious Systems in Greater China* (J. Wu 2022), we tested and further explored the various factors that have an impact on the formation of RRS in regions influenced by the Chinese state and culture. However, many theoretical and methodological issues have not yet been discussed. For example, because the concept of a system often implies the struc-

Citation: Wu, Jiang. 2023. Spatial Characteristics and the Non-Hierarchical Nature of Regional Religious Systems (RRSs). *Religions* 14: 85. https://doi.org/10.3390/rel14010085

Academic Editor: Z. George Hong

Received: 25 November 2022
Revised: 23 December 2022
Accepted: 23 December 2022
Published: 6 January 2023

ture of hierarchy, it is natural to assume that a regional religious system is also hierarchical in nature, similar to an administrative hierarchy and economic system.

There is a great need to clarify these essential theoretical issues, some of which are presented in the introduction to my recent RRS volume (Wu 2022). We are convinced that religious sites, such as Confucian temples, shrines, and academies; Buddhist and Daoist monasteries; popular cults; etc., are not randomly distributed in space and time. Rather, they form a loose system with internal organizational logic. The history of Chinese religions is extremely complicated, and the Chinese cultural area is vast; therefore, we intentionally defined RRSs as open and informal systems in relation to the more formal administrative and economical systems. Basically, RRSs are informal systems with an emphasis on horizontal, rather than vertical, connections among various religious sites. We used "spatial formation" to describe all possible scenarios that we encountered in our experiments through visualization and mapping. Such an open definition enables researchers to discover certain rules and principles by analyzing an array of sites and the characteristics of such spatial formations without imposing a fixed and pre-determined model on the datasets. The concept of region, which has been discussed extensively in our RRS volume (J. Wu 2022, pp. 2–6), can be understood from the geographical, administrative, economical, and cultural perspectives. The regional perspective we adopted did not exclude us from viewing our datasets from national and local angles. Rather, we often observed dynamic interactions among the state, region, and locality in the formation of RRSs.

The working definition we provided captures some of the major aspects and factors that we needed to consider in the study of regional religious systems. First, the study of RRSs is not limited to the sites because institutions here are an integral foundation of the function of sites. Sites are only structures and locations for institutions or functions. To limit the RRS study only to sites, we greatly simplified the complex relations of religious systems from a regional approach. Institutions are an important part of our research as well. In addition, the various factors listed in the definition, such as population, economy, transportation, education, culture, ethnicity, and language, are qualifiable and quantifiable variables for the purpose of generating evidence-based research results based on data collection and operation. The variables listed in the definition can have actual values in spatial analysis, regression studies, and quantitative applications.

This study explored some additional factors to be considered in RRS research. In this essay, I draw freely from existing scholarship as evidence and intend to cover the whole history and spectrum of Chinese religion. The brief comments and observations of specific religious phenomena need to be understood in their original contexts. Many topics covered in this paper reflect our tentative thoughts; therefore, further empirical studies need to be performed to finetune and develop some of the arguments.

The central question is this: does a regional religious system, labeled as "informal politics" or "local parapolitical structure" by William Skinner (Skinner 1977), exist besides the administrative and economical hierarchies in a Chinese region? If it does exist, does it form a hierarchical structure? Our inquiries into the RRS have largely been shaped by William Skinner's thoughts on the macroregion theory and center–periphery relationship in regional economic systems (J. Wu 2022, pp. 10–14). In addition to basing my discussions on the research presented in our recent RRS volume, I draw from our current project on the RRS in Greater China (rrs.arizona.edu) and various available research, especially from socio-historical, anthropological, and sociological studies of Chinese religion, to explain the spatial characteristics of RRSs. The formation of RRSs is examined in relation to regional administrative hierarchy, which mostly represents the domain of political dominance, and to regional economic hierarchy, which shows the organization of economic "nodes" where social and cultural resources are concentrated. In addition, transportation and pilgrimage routes connect these "nodes" together and form a multilayered trans-local network, which has also shaped the formation of RRSs. In conclusion, RRSs in Greater China should be regarded as a spatial formation without an internal hierarchical structure. My point is that the political and administrative hierarchy prevents the formation of

a strong religious hierarchy. By delineating these various factors, this study also provides a guide to conducting RRS research.

2. RRS in the Center–Periphery Relationship

2.1. Distinction of Center and Periphery

The distinction between center and periphery is important to discern the pattern of the spatial formation of RRSs because the mode of governance varies in the center and periphery. The state power in China and its influence on social, cultural, and religious life is strong and will remain strong in the foreseeable future. Its role in shaping RRS thus has to be considered and reflected in data collection and model-making. In pre-modern China, there were a variety of religious sites related to state ceremonial systems, which should be collected and studied. Moreover, the state influence that can be seen in the data collection process shows that the religious site data vary considerably from the state statistics and the data collected from local sources. In immediate areas, when the state and local government have exerted strong control, such as administrative centers, we see the formation of an urban RRS with strong state interference and officially patronized sites clustered and spread along administrative centers.

Islam and Christianity are no exception: during the Yuan dynasty (1271–1368), many Central Asians with an Islamic background served the Mongols as administrators; Islamic communities tended to spread in major administrative centers (Ryavec and Henderson 2015). Christianity in the late nineteenth and early twentieth centuries, under the aegis of state protection guaranteed by "unequal" treaties, spread along administrative structures (Wu 2008). In contemporary China, as Christian churches are targets of state control and surveillance, they respond by growing faster in peripheral border areas where the state power is less forceful (Yang et al. 2022).

This pattern of the state influence in the administrative centers can be clearly seen from Hangzhou during the Wuyue 吳越 kingdom (907–978) in today's Zhejiang area. The Wuyue kings adopted a pro-Buddhist policy and built many stupas and monasteries in the area. Through our mapping of the sites built by the five kings (See Figure 1), we can tell that these Buddhist sites tend to cluster around the city, and they formed an RRS linked by the state power, especially in the West Lake area, whereas fewer sites were built in remote areas. This spatial pattern provides a template for building Buddhist temples in later periods (Welter 2022, pp. 43–45).

The political and administrative centers often attracted state-sanctioned religious sites, which conformed with the state ideology. However, in the peripheral areas, "illegal" religions and "illicit" cults often flourished because of the weak state control. Donald Sutton, for example, surveyed the Chinese shamans (*wu* 巫) in local gazetteers and determined that the great majority of shamans tend to concentrate at the periphery or the edge of the core area (Sutton 1981). Due to the sharp contrast in social control between core and periphery areas, some social historians of China have suggested that pre-modern rural China has achieved a certain level of "ritual autarky", according to which the state seldom intervenes unless their practices threaten state power. According to David Johnson, rural China was largely insulated from the state and government, and also from a centralized ecclesiastical hierarchy, which rarely intruded into village life except for tax collection and moral indoctrination. Then, various religious sites and associations played a larger role in organizing village life (Johnson 2009). Due to the importance of this distinction, we should explore the formation of RRSs in central and peripheral areas more closely.

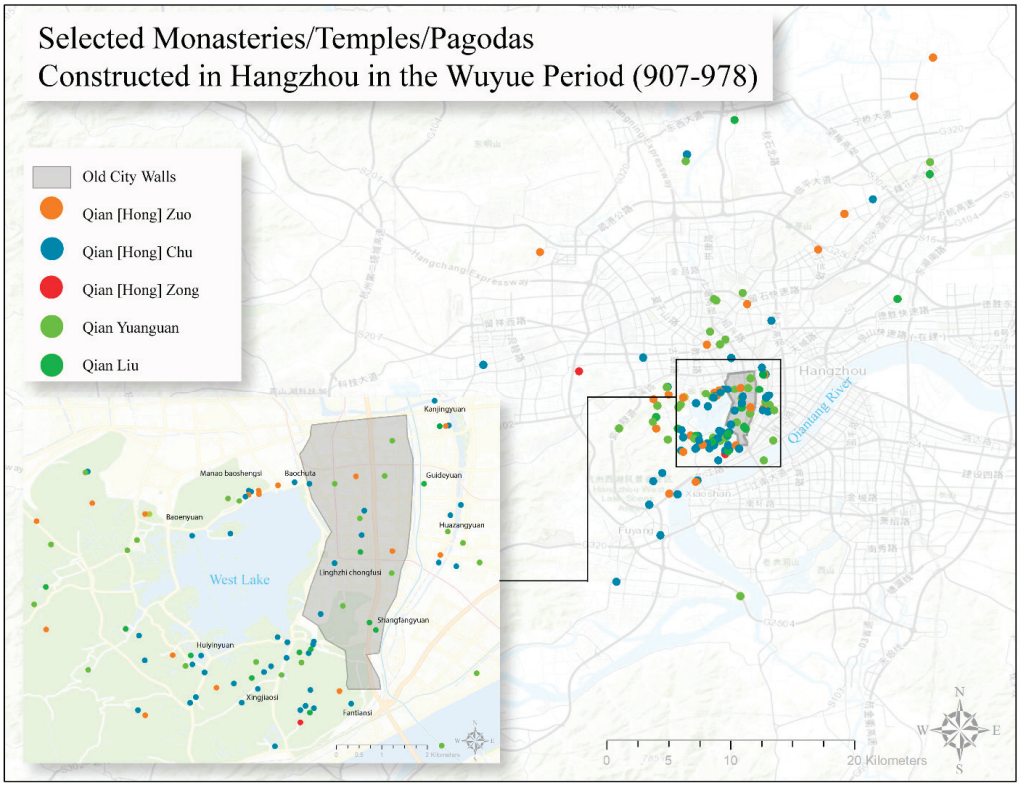


Figure 1. Selected record of monasteries/temples/pagodas constructed in Hangzhou in the Wuyue period. Source: *Hangzhou Prefecture Gazetteer* (1784) and University of Arizona BGIS Southern Song Dynasty Hangzhou dataset. Map by Philip Stoker.

2.2. RRS in Cities and Regional Centers

The power of the Chinese state is particularly strong in cities and regional administrative centers in shaping the religious landscape. In pre-modern China, state-stipulated ceremonies were not only held in capital cities, but were also ordered to be held in regional and local administrative centers.[1] In central metropolises and regional cities, city gods (*chenghuang* 城隍), revered protective territorial deities representing an otherworldly equivalent of the governing magistrate of that city, have been worshiped since the Tang dynasty. Accordingly, the rise of the cult in the Song reflects the rise of merchants and craftsman (Johnson 1985). However, as von Glahn points out, in the Song, the founding of City Gods Temples largely corresponded to the administrative hierarchy; no City Gods Temples were built in market towns. Rather, the "detached palaces" (Xinggong 行宫) of the Dongyue God 東岳 became the hallmark for promoting the stature of the market towns (see "The Song Transformation of Chinese Religious Culture"; von Glahn 2004, pp. 170–71; Goossaert 2011, vol. 1, pp. 192–93; Hamashima 1992).

Megacities such as Chang'an (now Xi'an) in the Tang dynasty (618–907), Hangzhou in the Southern Song dynasty (1127–1279), Beijing in the Ming (1368–1644) and Qing (1644–1912) dynasties, and Nanjing in the late imperial and the Republican periods are examples of fully developed religious ecologies.[2] Not only was the state ceremonial system fully installed and marked the cityscape, private interests of the royal family, aristocrats, and their associates also became patrons of temple building activities. More importantly, city dwellers who engaged in trade and crafts patronized their own cults and created their

own version of sacred space characterized by regional pilgrimage cults, such as the famed Lady of Azure Cloud (Bixia Yuanju 碧霞元君) in Mount Miaofeng 妙峰山, close to Beijing.[3] These city dwellers and sojourners brought in their own gods and patronage deities for their guilds and same native place associations.

In late imperial China (1368–1911), as Kristofer Schipper and Shiba Yoshinobu observed, temples in cities such as Tainan 臺南and Ningbo 寧波 often served "one quarter or even a single ward within the city" (Schipper 1977; Shiba 1977; Skinner 1977, p. 264). Stephan Feuchtwang also pointed out that village temples in China were institutions for that village area, whereas religious cults in the city, such as city gods, were directly serving the city's people without ritual jurisdiction over other similar cults within the city's administrative boundary (Skinner 1977, p. 591). It appears that in most Chinese cities, two types of religious institutions were close to city nuclei and were the most emblematic official religious institutions: Confucian school-temples and city god temples, which were adjacent to government buildings (*yamen* 衙門) and market centers, respectively. In a typical Chinese city, Confucian school-temples represent the "culture" (*wen* 文), together with Guan Di, representing "martial art" (*wu* 武). These cults were sanctioned by the state; therefore, their sites were usually closer to government offices in the center of the city. The city god temples, as well as other major popular religious cults, often reflected the bustling economic activities in city; thus, there were closer to the markets.

In Southern Song Hangzhou, the distribution of various social and economic functions followed the south–north axis created by the Grand Canal which led to Hangzhou. According to Shiba Yoshinobu's 斯波信義 study (1988), three functional zones can be clearly delineated in the irregular city landscape shaped by the Western Lake. The economic zone is located in the center of the city; the official zone is located in the south; and the gentry zone is located in the north. The state religious facilities, i.e., the Confucian academy and Ministry of Rite's School of Tribute Scholar (*Gongyuan* 貢院), are concentrated in the southern part of the city. A large number of people moved to Hangzhou after the fall of the north to the Jurchens in 1127; thus, immigrants brought their native cults with them to symbolize their regional identify. Buddhist temples were concentrated around the West Lake, especially in the north and south shores, where many Merit Cloisters (*Gongdeyuan* 功德院) and tombs of eminent generals and officials were located. On the west shore, large-scale monasteries such as the three Tianzhu monasteries 天竺寺 were located.[4]

2.3. RRSs in the Peripheral Area

In the hinterland rural areas, the state also exerted its influence by setting up local shrines and shaping communities according to the administrative structure, thus creating boundaries for local religious activities. It can be expected that state power has the strongest influence on religious sites close to the administrative centers; however, in peripheral hinterland rural areas, the state has less rigid control.

As early as the second century B.C., the Chinese state had installed a fully-fledged administrative order in rural areas. Below the county level, the Qin empire (221–206 B.C.) established a system of townships (*xiang* 鄉), cantons (*li* 里), pavilions (*Ting* 亭), Group of Ten (*shi* 什), and Group of Five (*wu* 伍). This system was inherited by the Han dynasty (202 BC to 9 AD; 25 to 220 AD). In the Northern Wei dynasty (386–585), a system of neighborhoods (*lin* 鄰), cantons (*li* 里), groups (*dang* 黨), and associations (*bao* 保) was established. In late imperial China, the administrative Baojia 保甲system, including cantons (里), wards (甲), sub-neighborhoods (圖), and precincts (境) was followed. More prominent was the rise of lineage organizations that played an essential role in building communities. In addition, some locally originated gods became regional due to the spread of the cults through merchant activities, festivals, pilgrimages, introductions from new host communities, and promotions by the clergy (von Glahn 2004, pp. 130–79).

The spatial characteristics of RRSs in peripheral rural areas were largely shaped by ritual activities organized by the locals. The religion in Taiwan, because of its continuity with tradition, has been most intensively researched by several generations of historians,

sociologists, and anthropologists. Fan I-chun 范毅軍 and his team showcased the most important step toward digitizing the results in various databases related to ceremonial processions in rural areas. Their studies show that the local cults and village alliances have clear spatial and territorial structures, which have been often referred to as a "ritual sphere" (*jisiquan* 祭祀圈), referring to a clear territory of relative ritual activities such as communal festivals and processions related to a given popular god in the community and neighborhood as an expression of social solidarity.[5] These "ritual spheres" can be clearly demarcated by mapping the activities of "*raojing*" 繞境 or "precinct-circling", using GPS trackers logging around the ritual boundary of a given local cult. Once every three to four years, these activities are often carried out simultaneously on different routes within one to four days. According to their studies, the processions are motivated by the same identity of belief and organized within a regional spatial structure (Fan and Allio 2014; Fan et al. 2022).

2.4. RRSs as Part of an "Informal" Territorial Structure

William Skinner emphasized the hierarchical nature of the regional economic system. However, he characterized religion, education, neighborhood councils, and lineage organization as "informal" social and cultural structures which paralleled the layered marketing systems (Skinner 1977, p. 336). His insight can be extended to RRS research, especially when we investigated temple-building activities and their relationship to the local economy.

With the exception of government patronage, construction activities of religious sites are largely spontaneous endeavors undertaken by local communities and thus have significant implications in regional economic systems. In pre-modern China, religious sites were built for various reasons and received patronage from different groups of people. There was no internal hierarchy within a given religious tradition to mandate the building of a religious institution in a local area; therefore, the initiatives of building a site largely depended on local circumstances. During their expansion, Buddhism and Daoism often took over shrines of local cults and incorporated them into the Buddhist or Daoist pantheon. Some religious institutions were shared by Buddhists, Daoists, and local ritual experts. Even those institutions which were sponsored by the state tended to draw significant support from the region for their maintenance and repair.

In late imperial China, the survival of religious institutions depended on the resources that a given temple was able to garner within a region. Very often, temple building activities require considerable investment drawn from local areas and were often supported by local elite, lineage organizations, and various voluntary religious associations. As Timothy Brook shows in his case studies of the Buddhist revival in the sixteenth and seventeenth centuries, temple revival around that time was largely sponsored by local gentry communities. Such a fervor in building temples was often linked to a changing relationship between the state and the local community and to the rise of local activism during a particular time (Brook 1993).

This means that religious sites in pre-modern China developed a high level of spatial dependency on regional and local economic resources. Immigration and population growth create the need for reallocating natural resources, and for organizing social activities such as self-defense, and especially, water reallocation. All major Chinese regions were based on drainage basins where rivers and their tributaries formed networks of irrigation and transportation. Religious activities on the regional level thus were closely associated with water work, irrigation, and the allocation of water resources in pre-modern China. This aspect was illustrated in Kenneth Dean and Zheng Zhenman's study of the Putian 莆田area, which shows the centrality of irrigation to the Chinese state, the administrative division, and the organization of the local religious system (Dean and Zheng 2010).

In the north, the development of local cults was also closely related to land acclamation and water projects. The Fenshui 汾水 watershed in Shanxi 山西, for example, was a cultivated area that heavily depended on the fair distribution of water resources among different villages in the watershed.[6] Its tributary, Jinshui 晉水 River, has been utilized

for irrigation since the Han dynasty, and the allocation of its water to the northern and southern canals was historically divided according in the ratio 7:3. However, the distribution of the water resource was crucial to the livelihood of local people and often resulted in disputes. Temple systems, such as Jinci Temple 晋祠, a Water God Shrine (Yuanshenmiao 源神廟 or Shuishenmiao 水神廟), where the spring emerged were thus erected as genius loci and dividing junctures of key irrigation projects and water control systems. These religious sites were maintained through moral obligations for local people, enabling them to engrave the rules of the water distribution onto religious symbolism and folklore related to the Holy Goddess of the Jin River (Jinshui yuanshen shengmu 晋水源神聖母) (Harrison 2002, pp. 94–101; Miller 2007; Zhao 2002). Periodical sacrifices to the water god held on the sites were acknowledged by the state and local government; local resources were invested to maintain its symbolic function. The function of these irrigation temples was thus also economical. These hydraulic temple systems largely determine the establishment of administrative systems, which depend on the allocation of water resources.

Similar processes happened in other places where the allocation of water resources becomes an issue. Research into the relationship between religion and these economic activities suggests that Chinese religion has a spatial structure closely following the economic and demographic structures.

3. RRSs in Relation to Transportation, Commercial Routes, and Pilgrimages

3.1. Transportation

The rise of Chinese civilization rested on the development of a vast transportation system linking the entire Chinese ecumene. Roads and highways were built in the early stage; waterways were utilized for transporting goods, provisions, grains/rice, and human passengers; canals were dug to connect different water systems. Religion also followed certain construction projects. Shrines were often erected along the highways and waterways for the builders or road gods; travelers carried "travelling implements" such as wooden tablets with a deity's name on it to sacrifice during road offerings (Nylan 2012). In addition to roads and waterways, the state developed extensive courier and postal systems to relay government documents and goods. Based on these official networks of transportation, commercial routes were developed and utilized by merchants to transport goods. These routes have no doubt facilitated the travels of religious personnel. As a result, certain religious traditions were often transmitted from one place to another along transportation routes.

Our research has placed great emphasis on the role of transportation, including its relation to commercial and pilgrimage routes. In our previous study, the importance of transportation in the formation of RRSs has been stressed (Wu et al. 2013). Through mapping, it has been identified that Buddhist institutions mostly spread along the transportation routes characterized by waterways. The role of transportation network in spreading a particular religion and cult has been also confirmed by social historians of religion. The construction of the Grand Canal was the most important project that connected the water systems of the Yellow River and the Yangzi River; both are east–west oriented. The so-called "Hydraulic religion" was thus developed along the waterways to offer religious protection. During the Ming and Qing dynasties, the state promoted the cult of the Fourth Son Golden Dragon Great King (Jinlong sidawang 金龍四大王) as the patron god of the Grand Canal and the Yellow River (Dodgen 1999). The Luo sect 羅教or Wuwei sect 無為教, popular in late imperial China, founded by a solider from Shandong called Luo Qing 罗清 (1442–1527), who developed his teachings when he was stationed in the Beijing area, was spread further to the south along the Grand Canal (ter Haar 2014; Overmyer 1978). The boatman population along the Grand Canal also developed complicated religious culture involving hydraulic gods, ritual opera, etc. (Lin 2012).

The spread of religion in the southeast coastal region, mostly the Fujian area, was particularly influenced by transportation. Despite the mountainous topography in this region, cities and towns were connected through waterways and highways, which played an

important role in facilitating the exchange of goods and personnel. In a study on RRSs, I have identified a triangular area along the border of the three neighboring provinces, commonly known as northern Fujian (Minbei 闽北) and located at the border areas of today's Zhejiang, Jiangxi, and Fujian. This "triangle area" used to be a transportation hub, but also a cluster of Buddhist temples (Wu et al. 2013, p. 188). Not only was Chan Buddhism developed along the transportation route; Christianity also spread along the waterways of the Min River from the coastal center of Fuzhou during the late Qing period (Wu 2008).

Often neglected is the role of the military system in transportation, communication, and internal immigration, especially after the Ming dynasty (1368–1644) when the system of military households and stations was established. The networks of garrisons and the movement of troops with their households provide additional channels for communication. In the Ming dynasty, military garrisons had their own territories and populations and were sometimes equivalent to local administrative units (Brook 1985; Dreyer 1988). Military systems even influenced immigration in the north and the spread of religion, such as the cult of Guan Yu 關羽, which was transmitted quickly through military garrisons in the early Ming dynasty (ter Haar 2017).

3.2. Trading Routes

Studies have shown that many regional cults derived from the local worship of baleful ghosts who often had insecure personal lives and suffered tragic death without descendants, but had miraculous power to protect local communities. These cults then spread regionally and even nationally. Similar processes occurred in the spread of eight popular deities in Fujian, as Barend ter Haar posited. One distribution pattern ter Haar identified is the spread along the trading route where merchants, monks, and migrants traveled. More interestingly, temples were built close to bridges. In later times, Buddhist monasteries often appeared to be the private sponsors of road- and bridge-building. The distribution pattern of these Fujian gods also fits in William Skinner's macroregion of the Southeast Coast, as ter Haar pointed out, and can be further divided into three sub-regions for the cults: northern Fujian and southern Zhejiang, coastal southern Fujian and northern Guangdong, and western Fujian (ter Haar 1990).

Social historian Valerie Hansen also showed that the spread of regional cults such as the Five Manifestations (Wuxianshen 五顯神), Zitong God (Zitong Dijun 梓潼帝君 or Wenchangjun 文昌君), the Heavenly Consort (Mazu 媽祖), and Zhangwang God 張王神 were spread with the aid of merchants, following the waterways extending from one region to another. During the "commercial revolution" of the Song dynasty, these newer gods of "low birth" were patronized by new settlers as extra-local "regional deities" in newly developed areas, such as the lowland area in Huzhou 湖州 prefecture near Lake Tai 太湖 (Hansen 1990; Shi 2016). The imperial transportation system also became the origin of some local and regional cults. Japanese historian Hamashima Atsutoshi 浜島敦俊, for example, confirmed that after the Yuan dynasty, some of the local gods, all of whom were anthropomorphic with a human name, such as the various Zongguan 總管 (Superintendent) cults, derived from the late Yuan dynasty government office titles concerning tax grain transport. They became water gods and were later worshipped by peasants as well (Hamashima 2011).

Semi-religious organizations, such as ritual opera troupes, served local societies as possible links to the dissemination of religious symbolism through the regional network of transportation routes. According to Tanaka Issei 田仲一成, in late imperial China, opera, often supported by market towns, villages, and lineage organizations, had become an integral part of the life of Chinese lineage organizations, which often sponsored performances for the purpose of sacrifice to communal gods (*waishen* 外神) and lineage gods/ancestors (*neishen* 内神) at the occasion of festivals and memorial days (Tanaka 1972, 1985). The spread of certain types of ritual opera, clearly based on the distribution of local dialects, has the most obvious regional features. In his study on the geographical distribution of the Mulian opera 目連戲, Tanaka Issei traced the regional origin and distribution of its "text

system". He found that the spread of the opera had a unique geographical aspect and was closely related to local transportation and dialects. The spread of the Mulian opera from Huizhou 徽州, where the standard version was finalized by the literatus Zheng Zhizhen 鄭之珍 (1518–1595), was closely associated with the travels of Huizhou merchants and the extension of a rice trading network centered on Huizhou (Guo 2005). The records of the Mulian opera performance match the key travel routes around Huizhou, as recorded in the travel guidebooks published during that time. To explain the origin and spread of the Mulian opera in Fujian and Zhejiang, Tanaka consciously borrowed insights from William Skinner. Within the framework of Skinner's macroregion theory, Tanaka identified that within the region of the Southeast Coast, in which Fujian is the center, it was the vernacular version of the Mulian opera developed in Putian, which was spread to South Zhejiang because of the maritime transportation of merchants (Tanaka 2016, pp. 168–70, 747–57).

3.3. Pilgrimage Routes

Pilgrimage routes and the spatial pattern they create is an important characteristic of RRS in China. In spatial terms, pilgrimage, through imposing a spatial lineup of a group of sacred sites, created a new relationship of these sites which were often located in the periphery and remote places. It insinuates a unique spatial formation different from the center–periphery relationship dominated by demography and economic factors. Pilgrimage routes also have regional features and often function as a mechanism of spatial organization in a given region. These routes constitute a spatial structure at national, regional, and local levels. Therefore, pilgrimage connections are particularly important in China because there are no formal and structural links to connect the numerous religious sites together.

According to Steven Sangren's study of Ta-ch'i in Taiwan, pilgrims are often organized at the grassroot level, such as the village territorial-cult level (Sangren 1987, pp.88–89). Several recent studies (Bingenheimer 2022; Ouyang 2022; Zhang 2022), following Timothy Brook's research, have successfully mapped pilgrimage routes and situated them within their regional contexts, such as Skinner's macroregional systems, as suggested in Susan Naquin and Chunfang Yu's book on pilgrimage and sacred sites in China (Naquin and Yü 1992). The Buddhist pilgrimage network, for example, largely overlapped with the commercial routes, as these authors identified. Marcus Bingenheimer, in particular, showed the existence of a "pilgrimage square", a spatial pattern of spiritual traveling that connects sacred mountains. This interesting pattern in north China suggests that Chinese temples tended to cluster along a rectangle regional circumference in late imperial China, leaving the middle area relatively "hollow" (Bingenheimer 2022).[7]

The crucial issue here is whether pilgrimage routes and the organization of pilgrimage groups indeed provide an internal hierarchy for RRS. Zhang Weiran's study (Zhang 2022) did allude to the multilevel order of pilgrimage routes in the lower Yangzi River region. However, this order did not have any actual subordinate relationship. Isabelle Charleux also noted that, among Mongolian pilgrims to Mount Wutai, there were a variety of social and economic motives (Charleux 2015, pp. 205–76). Some temples clustered around a famous site, such as Mount Wutai 五台山, may form a certain kind of local alliance without an obvious hierarchical structure (Charleux 2015, pp. 68–76). Moreover, as Sangren notes, in Taiwan, pilgrimage centers are often located in the periphery of political and economic hierarchy, but they depend on the same transportation routes (Sangren 1987, p. 122). Their observations confirm what Victor Turner has pointed out: "any region possessing a certain cultural, linguistic or ethnic unity, often corresponding also to an area of economic interdependence tended to become at once a political unit and a pilgrimage catchment area" (Turner 1974, p. 179). This means that although pilgrimage routes connect a multitude of religious sites together, they do not form an internal hierarchy among these sites which oriented these sites towards a center. These potential hierarchical structures may work well in local areas and small regions, but are usually suppressed when they tend to grow

trans-locally. In Section 4, Chinese Buddhism is used as a case study to discuss this non-hierarchical aspect more thoroughly.

4. Hierarchical and Non-Hierarchical Aspects of RRSs

4.1. The Issue of Hierarchy

RRSs exhibit a great level of spatial dependence on existing administrative and economic systems. The question, however, is whether or not RRSs also form hierarchical structures closely mirroring the regional administrative and economic hierarchies. My answer is no, although RRSs indeed draw support from the two hierarchies. Although RRSs do not possess an internal hierarchy, they have served important social, economic, and cultural functions in Chinese society, paralleling the political and economic structures.

In our previous study, regional religious systems (RRSs) were described as being situated in the regional context defined by William Skinner's macroregion theory in order to identify their relation to political and economic hierarchies in a given region (Wu et al. 2013; Wu 2022). This approach has been adopted by other scholars and was proven to be effective. Steven Sangren used Skinner's regional systems method to study Chinese religion in Taiwan and described the rural territorial cult system as a "nested hierarchy", showing "patterns of social interaction in spatial, behavioral terms" (Sangren 1987, p. 14). He noted that "hierarchies of ritual organization and social identity correspond closely in spatial terms to the nested hierarchies of economic regions, just as Skinner predicts" (Sangren 1987, p. 15). Although scholars have tried to describe the Chinese pantheon, especially Daoist and popular religion, as "structured hierarchy" with a "subordinated" lower status deity, such symbolic and the formal "universalization" of local deities plays little role in spreading and organizing local cults, even less influential than popular novels and folktales, as Paul Katz showed (Katz 1998, pp. 110–11). This approach gives readers the impression that RRSs also constitute hierarchical systems, which have their own structure to orient spiritual and institutional recourses towards a regional center. Although the mechanisms and tendencies of forming a spatial hierarchy do exist, they are limited in spatial scales and are often seen within village alliances in a small region. Most religious sites in pre-modern China remain establishments in their immediate locality, without the vertical connections that a hierarchy requires, except in the cases of religious sites with foreign origins (i.e., Christianity and Islam) and some short-lived attempts to form sectarian organizations.

This non-hierarchical characteristic has been observed by many scholars of Chinese religion. It is still useful to cite John Knight Shryock's study on temples in Anking (Anqing 安慶). According to him, Chinese religion is remarkably "diffused" without a strong institutional base:

> A Chinese temple must not be thought of as a kind of church, standing in the midst of a group of people who look upon it as their religious home. These temples are not built for worship by large bodies of people at one time. . . . . . And it must be remembered that a Chinese does not belong to a temple and regularly attend worship there, as a Christian belongs to his parish church, for there is nothing in the Three Religions corresponding to the Christian congregation.
>
> (Shryock [1931] 1973, p. 28)

Sidney Gamble reported a similar observation of religious institutions in the modern Ting county (Dingxian 定縣 or Dingzhou 定州) in Hebei:

> The temples seemed to be relatively independent units. Most of them had been erected by the people living in the village. The building was financed sometimes by popular subscription, sometimes from village funds, occasionally by an individual who had acquired wealth and wanted to do something for his native village. When built, the temple was dedicated to the deity who offered the type of protection the people felt they needed or who personified the characteristics

> they honored and revered. Priests were in attendance only for special services. These priests had had, of course, the official Buddhist or Taoist training.
>
> (Gamble 1954, p. 401; Yang 1961, pp. 324–25)

These observations suggest that (1) Chinese religious sites were independent (2), there was no hierarchical structure among them, and (3) there was no dominance of ordained clergy either. Of course, this conclusion was based on observations on popular sites devoted to popular cults, and established traditions such as Buddhism may give us the impression of having an internal hierarchy. As shown below, however, not only did Buddhist temples exhibit a non-hierarchical pattern, the attempts to establish a hierarchal structure across space also resulted in failure.

4.2. The Early Spread of Buddhism in China

In Chinese history, regional regimes and dynasties supported Buddhism as a national policy; a monastic bureaucracy was even established to manage Buddhist institutions. For example, among the Daoists in late imperial China, the office of the Heavenly Master appointed by the court in the Longhu mountain 龍虎山 in Jiangxi has often been regarded as a "Daoist pope" who dispatched his spiritual power of officiating Daoist ritual masters (Goossaert 2004). However, such a bureaucratic structure was only concentrated in major cities and administrative seats. Ideally, the central foci of these religious bureaucracies at each level of the administrative system would correspond to the spatial structure of standard, intermediate, and central market towns, as well as regional cities. Although these regimes patronized religious sites, some scholars of Chinese religion, especially scholars of Chinese Buddhism, tend to overemphasize the role of the state and the alliance between the Buddhist community and the state without an adequate consideration of Buddhist sites in regional and local settings. However, a hierarchical structure patronized by the state was never fully established.

As a matter of fact, the majority of Buddhist sites in China were not built by the state, but rather by local forces. According to an often-cited source in *A Comprehensive History of Buddhism* (*Shishi tongjian* 釋氏通鑒), in the Northern Wei dynasty (386–534), the state built approximately 47 great Buddhist monasteries, whereas the aristocrats built about 840 temples. However, the "commoners" had built approximately 30,000 temples.[8] Little is known about the details of these 30,000 temples, such as their size and services provided. However, their existence must be explained from other perspectives, especially the mode of transmission and its relationship with the regional economic system.

The non-hierarchical nature of Buddhist institutions in China can be explained based on the early transmission mode of Buddhism in China. As Erik Zürcher posited, in the vast rural area of China, Buddhism adopted "a spontaneous mode" of transmission or "disorganized, polycentric infiltration", which responded to each unique local situation differently in order to fit into each locality. Therefore, no centralized structure took form within Buddhist communities unless mandated by the government. This is in contrast to "contact diffusion" in India, as he describes below:

> Once a local *sīmā* ('alms circuit') had been established and grown to its optimal size (corresponding to the number of mendicant monks that could be borne by a local productive community), monks would move on to establish new *vihāras* in adjoining territories. Thus Buddhism branched out from an ever-increasing number of centres, filling the territory in a homogeneous way. In China, sheer distance and physical geography combined to produce a completely different type of diffusion.
>
> (Zürcher 2013, p. 340)

Erik Zürcher considered the geographical setting in the process of the "Buddhist conquest" of China, making insightful observations as if he had a huge database of Buddhist sites. He recognized the vast geographical differences in China by first identifying the diffusion of Buddhism as a slow process, taking roughly four centuries to spreading to all

major regions in China and across all social spectrums. Unlike the mode of contact diffusion in India, such a process is "fragmented and piecemeal", first being developed in the north and northwest under the aegis of non-Chinese rulers, whereas people in the south developed a more Sinicized version of Buddhism. The two types merged after China's unification in the sixth century, giving rise to indigenous Chinese Buddhist traditions. Secondly, Chinese Buddhism originated from different sources representing different kinds of Buddhism. The great emphasis on unity and integrity in Chinese Buddhism exactly demonstrates its diversity and contradictions. Thirdly, the vast distance between China and India created a linguistic barrier which prevented the Chinese from directly communicating with Indian Buddhist centers, but enabled more freedom to translate and understand Buddhist teaching in classical and vernacular Chinese (Zürcher 2013, pp. 339–42; Liu 1988). In contrast, according to Zürcher, the spread of Christianity in late imperial China was a centralized and guided process commanded by the Vatican in Rome through the dispatch of capable foreign missionaries to build a hierarchical church network throughout China (Zürcher 2013, pp. 384–88). These three factors had a lingering effect on the formation of Chinese Buddhism in spatial terms.

4.3. The Spread of Buddhism in Medieval and Later China

The spread of Buddhist sites displays some interesting spatial patterns during the early medieval China. Yen Gengwang 嚴耕望, for example, based on his study of the origin of eminent monks, discovered a "vacant area in central plain" 中原空虛區 between the Yellow River and the Huai River 淮河 with no significant distribution of eminent Buddhist monks, as shown in Figure 2. Accordingly, the distribution of eminent monks was concentrated along the Taihang mountain 太行山 and in southern China along the Yangzi River (Yan and Li 2005, pp. 57–58). This left the central area between the Yellow River and the Yangzi River as a noticeably empty space, without significant Buddhist activities. The reason for this spatial pattern is not clear. This certainly does not mean that no religious activities occurred in this area. Rather, it shows that there might have been a different mode of religious dissemination in this vacant area.

In medieval China, Buddhist institutions often appeared as land grant estates with their own land, affiliated populations, and fortified compounds, similar to the great estate of larger clans. They competed with the state power, dispersed into the vast unclaimed land, and played a significant economic role in organized efforts for land reclamation, thus forming small local economic, social, and religious units along basins of short rivers or tributaries where water resources are available.[9]

The late Tang and Five Dynasties period witnessed a change in the spatial distribution mode of Buddhist sites in addition to the shift of China's demographic, economic, and cultural center to the south (Liu 1989). In late imperial China, Buddhist institutions were even further relegated to the margin of the state power, and largely became individual local institutions without being integrated into any bureaucratic structure. This function of Buddhist monasteries in agrarian China gradually declined as such functions were taken away by lineage organizations after the late Tang and Five Dynasties periods, starting from the second half of the eighth century.[10] The government did appoint clerical supervision agencies; however, these offices rarely functioned efficiently. Timothy Brook's subsequent observation of Chinese monasteries in the Ming dynasty may be extended to all other periods and indicates that Buddhist institutions did not appear to be part of a large hierarchy or network:

> Ming Buddhism existed as a congeries of little institutions dispersed randomly across the country, without hierarchy, internal organization, or any regulatory body other than what the state supplied. With the exception of limited ties among sister monasteries and linked pilgrimage sites, Buddhist institutions did not participate in a larger institutional framework at any level. Unlike European Christianity, Ming Buddhism was not woven into the net of secular power.
>
> (Brook 1993, p. 29; J. Wu 2008, pp. 261–62)

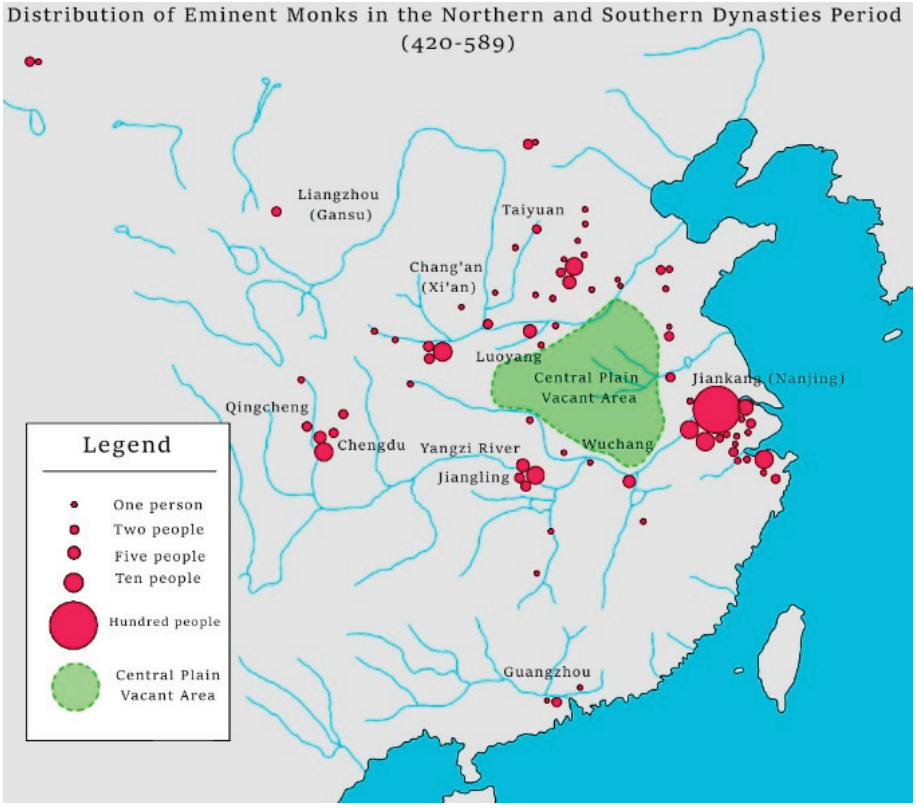


Figure 2. Central plain vacant area, indicated by the distribution of eminent monks in the Northern and Southern Dynasties period. Source: Yan Gengwang, *Weijin Nanbeichao Fojiao dili shigao*, pp. 46–47.

4.4. The Development of a Hierarchical Lineage Model

Within Chinese religion, some mechanisms possibly enable the process of sectarian formation, which leads to the development of religious hierarchy. However, these mechanisms have not been fully developed. A bureaucratic model can be considered as the first mechanism, which mimics the state administrative system. Many popular Daoist and territorial cults tended to organize their pantheon around an administrative hierarchy model by naming and arranging their gods with official titles and ranks. However, this bureaucratic model was restricted to the symbolic realm, with extension to the actual organization of their religious sites.

The mechanism of "the division of the incense (*fenxiang* 分香)" among popular cults can be considered the second alternative. In south China, some temples of popular religions were organized through this mechanism of "the division of the incense (*fenxiang* 分香)". This also created a potential multilevel structure of mother–daughter temples, which was formed by transferring incense burner ashes from an existing temple to a newly founded temple, creating an institution "under the incense burner" (*luxia* 爐下) of the older one (Skinner 1977, pp. 581–608).

In a given region, a group of temples can form a spatial structure with one prestigious temple as the center, resembling a hierarchical structure. Although this relationship makes the new temples tributaries to a place of origin, and on special ritual occasions, monetary contributions and pilgrimage to the senior temples are expected, this kind of relationship is subject to constant change and is interdigitated with its connection to various voluntary

"liturgical associations", as Kristofer Schipper identified (Skinner 1977, p. 653). This is rather an informal and loose type of association rather than forming a hierarchy with layered one-directional orientations. Moreover, many other local cults such as the Earth God 土地公, a neighborhood cult whose burners are usually filled with rice, never related to each other through *fengxiang*. Additionally, among the sectarian divination (*bailuan* 拜鸞) "phoenix halls" (luantang 鸞堂) in Taiwan, even though the "mother-and daughter temple" relationships do exist, they only indicate historical connections rather than "any thought of centralized control of a system of temples" (Jordan and Overmyer 1986, p. 80).

The traditional lineage model, however, is the most convenient and promising tool to organize clergy and religious sites in Buddhism such as Chan 禪, and Daoism such as the Longmen 龍門and Zhengyi 正一 traditions in late imperial China, and sectarian religions and salvationist movements such as the Luo sect 羅教 and its variants.

Within Buddhism, the Chan Buddhist tradition adopted the lineage model to its full extent through the method of dharma transmission after the eighth century. As detailed elsewhere, dharma transmission "bonds a group of monks with a special kind of spiritual relationship comparable to that of father and son in a secular Chinese lineage organization" (J. Wu 2008, p. 10). Moreover,

> The Chan lineage is perhaps the largest and longest lasting lineage organization in China. Unlike lineages in the secular realm, the Chan lineage is maintained by an imagined form of reproduction. By means of dharma transmission, dharma heirs gain legitimacy to succeed to the patriarchal position in an imagined family. Therefore, the continuity of dharma transmission is central to the survival of Chan lineages.
>
> (J. Wu 2008, p. 34)

This system of dharma transmission implies a hierarchy and has the potential to establish a spatial structure for Chan monasteries. As early as the seventh century, Chan Buddhists created a fictional patriarchal transmission lineage from Śākyamuni through an unbroken line from the twenty-eight Indian patriarchs to six Chinese patriarchs. The golden age of Chan Buddhism was the Five Dynasties and the Song Dynasty, when collateral lines of transmission from the Sixth Patriarch Huineng's 慧能 (638–713) Southern School developed and Chan genealogies, the so-called "Record of Lamp Transmissions" (*chuandenglu* 傳燈錄), were compiled and sanctioned by the court. The old myth that Chan communities developed in remote mountainous areas might bear some truth; for the most part, the early Chan congregations were rural institutions in the south amid immigrant agrarian communities and developed a sense of self-reliance and identity through emphasizing their dharma lineage connection based on a master–disciple relationship. During the late Ming dynasty, the notion of dharma transmission and the compilation of such genealogies reached another height and then gradually declined again (J. Wu 2008).

In late imperial China, a typical Chinese temple operated on a lineage model closely resembling a secular lineage organization. Masters and disciples formed a lineage of dharma connections without blood ties. Buddhist communities were divided into public monasteries (*Shifang conglin* 十方叢林), hereditary monasteries (*zisun miao* 子孫廟), and dharma transmission monasteries (*chuanfa conglin* 傳法叢林). Monastic lineages were divided into the tonsure family (*tidu zongpai* 剃度宗派) and dharma transmission family (*chuanfa zongpai* 傳法宗派), and they were most relevant to the abbot succession system. The public monasteries would allow heirs from all lineages to become abbots. The hereditary monasteries, however, only allowed the heirs of a given tonsure family to inherit the temple. Dharma transmission monasteries accepted candidates from a given dharma transmission lineage (Wu 2015, pp. 53–80). In large temples, monastic properties were divided into different "households" (*fang* 房) of monks where ownership was handed down along the lineage lines (Zhang 2015). Demonstrably, this lineage model was restricted to the abbot succession system and did not affect the independent status of a given Buddhist temple.

As revealed in this study of the seventeenth-century Buddhist revival, the fully revived Buddhist temples, although based locally, began to network along the hierarchical

Chan dharma transmission lines cross-regionally. This attempt, however, was met with a severe response from the Qing government which would not allow any "vertical" structure paralleling to the state power in the central, regional, and local levels. Potentially, a group of religious sites, based on a coherent teaching and leadership, could have grown translocally based on a vertical power structure, thus posing threat to the existing governmental authority (J. Wu 2008, pp. 258–62). However, it seems that the existing hierarchies, both administrative and economical, prevent the development of an additional hierarchical structure. The potentials for developing a regional hierarchy, before they were fully grown, were suppressed by the Chinese state, which has serious concerns over any hierarchical parallel to the existing political structure. This also explains the concerns of the Chinese government about religion and the reason why potentially building a religious hierarchy should be suppressed from the state's point of view.

4.5. The Government's Role in Preventing the Formation of a Religious Hierarchy

RRS implies a power structure, a "spiritual bureaucracy" mimicking the government offices, which might be in parallel to the existing power structures represented by the Chinese government. In some areas, especially the peripheral regions where the Chinese state power does not have a strong presence, religion constitutes the function of the "second government", as Kenneth Dean heavily emphasized (Dean 2001). Kristofer Schipper developed a similar concept and claimed that "Neighborhood religious associations formed the focus of a sort of local self-government" (Skinner 1977, p. 615). Thus, the political implication of a hierarchy-oriented RRS is even more threatening in some areas, especially in China's ethnic regions, because a certain religious network with a structure could lead to political claims and function as quasi-political organizations trans-locally. The government would certainly be aware of the potential challenge of the RRS in a given region. The usual state strategy, which can be described as a "territorial principle" in legal terms, would be to suppress the transregional potential of this structure and to keep religious sites strictly local without trans-local hierarchies. Many factors influence and prevent RRSs from becoming hierarchical, and there is no benefit for the state to foster a hierarchal RRS. Instead, RRS is allowed to develop a horizontal relationship within a given region and locality rather than a vertical structure parallel to the existing political and economic hierarchies.

Official state cults and ceremonial systems implied a hierarchy because their establishments were closely paralleled with the administrative level and were supposed to cover the subdivisions within the region's administrative boundary. However, a religious hierarchy delineated by an administrative boundary is very limited and not successfully established by the government. Many official state cults were local phenomena within a city or a given region, although the imperial government gave symbolic support to similar activities throughout its administrative region, although the popular temples were also territorially defined with its participants coming from a given territory in the city. In addition, numerous territorial neighborhood religious associations are affiliated with the temples or other civil organizations, such as guild and same-place associations (*Tongxianghui* 同鄉會), which operated outside the state system.

If the state were to exert such a strong influence on the religious system, it can be expected that the state would aim to establish a hierarchical system closely mirroring its administrative structure. Although the state has tried to impose certain administrative structures upon religious sites, most noticeably in Buddhism, such as the establishment monastic officer systems, the Five Mountain system in the Song dynasty, etc., these attempts were never successfully accomplished until the People's Republic of China initiated nationwide bureaucracy to control religious affairs.

RRSs also represent heterogeneous forces foreign or even detrimental to homogeneous administrative systems. Thus, the RRS has to be suppressed and prevented from becoming a competing hierarchical structure. In this sense, the political hierarchy tends to "push" away the religious system. On the other hand, in relation to the economic system,

each religious site relies heavily on local sources, as numerous studies show. The result is that these sites are "pulled" toward each "node" within the economic system, causing clustering along the existing regional central places and settlements and becoming a function of the economic hierarchy. This phenomenon also prevents the spread of a hierarchy within a religious system. The forces of "push" and "pull" from the two systems, one rejecting and one attracting, explains why a hierarchical RRS is not desirable and has to be controlled. At times of crises, these two hierarchical structures tend to encroach on religious resources, as seen in the late Qing and early Republican time period when a large number of religious sites were appropriated, leading to the collapse of stable RRSs (Katz 2014, pp. 17–67).

5. Conclusions

Unlike religious sites in pre-modern western Europe and Edo Japan, where parish systems and household registration systems were established through utilizing religious institutions, RRSs in Greater China were not absorbed into the administrative hierarchy because they did not have a function in Chinese administrations. In contrast, the Chinese administrative system tends to be comprehensive and has penetrated to the lowest level of the social spectrum, leaving little space for other social structures to grow. Even in areas where religion appears to undertake some functions of the "second government", as Kenneth Dean describes, religious sites and the activities associated with them have to be "domesticated" through sponsorship from existing "legal" social entities such as lineage organizations and local elite groups.

The non-hierarchical nature of Chinese religious institutions was also noted by sociologists such as C. K. Yang, who investigated the social function of Chinese religion from the mid-nineteenth century to the 1960s and identified that the structural "weakness" of religious institutions is the lack of "any effective hierarchical structure", except for in some sectarian religious organizations. As he observes, "The primary units, the temples and convents, were not only small but were also lacking in centralized organization of any significant size and any effective hierarchical structure. In actual operation, each temple or convent functioned largely as an autonomous unit" (Yang 1961, pp. 312–13).

However, RRSs are indeed spatial formations, not just an "ideal-type", in addition to the political and economic hierarchies. More importantly, RRSs do not follow the confines of these two hierarchies. As Kenneth Dean showed, coastal areas such as Putian have often relied on overseas economic and cultural resources for revival, thus extending their domains outside China and forming more coherent unity with overseas Chinese communities (Dean 2022). Moreover, the locals created unique gods and beliefs only popular in one region such as the Three-in-One movement (*Sanyijiao* 三一教), suggesting that factors other than politics and economics, such as immigration, transportation, and local dialects, might have played bigger roles in Greater China (Dean 1998).

Whether or not the explanation presented here covers all religious aspects in every tradition, the kernel of truth is that no stable hierarchy exists among religious sites despite some potentials and initiatives on the local level, which tend to be thwarted by other exogenous forces. For the reasons suggested earlier, the non-hierarchal nature of RRS shows that we cannot assume that RRSs have structures similar to Skinner's notion of hierarchal space, although administrative and economical forces may bring religious sites into close alignment with the levels in the two existing hierarchies. Rather, in addition to considering the role of administrative and economic hierarchies, the formation of RRSs in a given region exhibits more complicated organizational and network patterns fostered by various links such as transportation, trade, and pilgrimage, some of which are historical and can go back many centuries. It also shows, as one might suspect, an over-reliance on political and economic explanations of the spatial formation of RRS may be obscuring some regularities in religious communities, which routinely reoccur but can easily slip out of contemporary discourse.

Funding: This research received no external funding.

Data Availability Statement: Additional supporting datasets about the RRS research can be downloaded at: rrs.arizona.edu (accessed on 22 December 2022).

Acknowledgments: The author would like to thank the administrative support of the Center for Buddhist Studies, College of Humanities, the University of Arizona and mapping support from Philip Stoker at the College of Architecture, Planning and Landscape Architecture, the University of Arizona and Bishan Zhao, the former graduate assistant at the Center for Buddhist Studies, the University of Arizona.

Conflicts of Interest: The author declares no conflict of interest.

Notes

1 Notably, not all state cults prescribed in official ritual manuals were faithfully duplicated in every city, nor were they supported purely by officials. See Feuchtwang, "School-Temple and City God", in (Skinner 1977, pp. 581–608).

2 In addition to the papers collected in Skinner's volume, religious sites in these cities have been studied most substantially. See (Xiong 2000; Naquin 2000; He 2000; Shao 2017).

3 There are numerous studies on this mountain. For the early and classic work, see (Gu [1928] 2014).

4 There were 108 religious sites according to Shiba's statistics. See the complete list in (Shiba 1988, pp. 368–69).

5 This concept has mostly been promoted by the Taiwan scholar Lin Meirong 林美容. She also distinguished this concept from "the belief sphere" 信仰圈 of a particular deity which is more regional than local. See (Lin 1988).

6 The land supported many religious sites and the nineteenth-century pilgrim monk Xiancheng 顯成, for example, still noted the existence of more temples in this area than others in his travel book which Marcus Bingenheimer and Nan Ouyang studied (Bingenheimer 2022; Ouyang 2022).

7 This discovery resonates with Yan Gengwang's identification of a vacant area in China's central plain area. See later discussions about Yan's discovery. Of course, the hollow areas identified by Yan and Marcus do not overlap exactly and seem to have their own historical reason of formation. However, further research is needed to identify the spatial organization of religious sites in the north.

8 *Shishi tongjian*, fasc. 5. This source has often been cited. For an English translation, see (Gernet 1995, p. 4; von Glahn 2016, p. 201).

9 The situation in this period is similar to the role of Buddhist monasteries in Tibet. In historical Tibetan polities, Buddhist temples shared governmental functions and joined the administrative hierarchy to a great extent. As Karl Ryavec pointed out (Ryavec 2022), Buddhism, as a universalizing religion, spread in Tibet through the settlements, markets, and trade systems, providing functions as political and economic centers.

10 For a study of the Buddhist economy in medieval China, see (He 1986).

References

Bingenheimer, Marcus. 2022. Traversing the "Pilgrimage Squar" of Northern China in the 19th Century. In *The Formation of Regional Religious Systems in Greater China*. Edited by Jiang Wu. London and New York: Routledge, pp. 73–92.

Brook, Timothy. 1985. The Spatial Structure of Ming Local Administration. *Late Imperial China* 6: 1–55. [CrossRef]

Brook, Timothy. 1993. *Praying for Power: Buddhism and the Formation of Gentry Society in Late-Ming China*. Cambridge: Harvard University.

Charleux, Isabelle. 2015. *Nomads on Pilgrimage: Mongols on Wutaishan (China), 1800–940*. Leiden: Brill.

Dean, Kenneth. 1998. *Lord of the Three in One: The Spread of a Cult in Southeast China*. Princeton: Princeton University Press.

Dean, Kenneth. 2001. China's Second Government: Regional Ritual Systems in Southeast China. In *Shehui, minzu yu wenhua zhanyan guoji yantaohui lunwenji (Collected Papers from the International Conference on Social, Ethic, and Cultural Transformation)*. Edited by Qiugui Wang, Zhuangying Zhang, Zhongmin Chen, Zhoujie Pei and Jieyu Long. Taipei: Center for China Studies, pp. 77–109.

Dean, Kenneth. 2022. Historical GIS and the Study of Southeast China and the Southeast Asian Chinese Diaspora. In *The Formation of Regional Religious Systems in Greater China*. Edited by Jiang Wu. London and New York: Routledge, pp. 177–97.

Dean, Kenneth, and Zhenman Zheng. 2010. *Ritual Alliances of the Putian Plain*. 2 vols, Leiden: Brill.

Dodgen, Randall. 1999. Hydraulic Religion: 'Great King' Cults in the Ming and Qin. *Modern Asian Studies* 33: 815–33. [CrossRef]

Dreyer, Edward. 1988. Military Origins of Ming China. In *The Cambridge History of China, Vol. 7, The Ming Dynasty (1368–1644), Part 1*. Edited by Denis Twitchett and Frederich W. Mote. Cambridge: Cambridge University Press.

Fan, I-chun, Ying-fa Hung, Hsiung-ming Liao, Jr-jie Jang, and Chien-chou Chen. 2022. Using Geospatial Technologies to Study Regional Folk Religions: The Taiwan Religion Database and Two Case Studies. In *The Formation of Regional Religious Systems in Greater China*. Edited by Jiang Wu. London and New York: Routledge, pp. 198–212.

Fan, I-chun 范毅軍, and Fiorella Allio 艾茉莉, eds. 2014. *Atlas of the 2012 Religious Processions in the Tainan Region* 臺南地區壬辰(2012)繞境儀式香路圖圖集. Taipei: Center for Geographic Information Science, Research Center for Humanities and Social Sciences, Academia Sinica.

Gamble, Sidney D. 1954. *Ting Hsien, a North China Rural Community*. New York: International Secretariat, Institute of Pacific Relations.
Gernet, Jacques. 1995. *Buddhism in Chinese Society: An Economic History from the Fifth to the Tenth Centuries*. New York: Columbia University Press.
Goossaert, Vincent. 2004. Bureaucratic Charisma: The Zhang Heavenly Master Institution and Court Taoists in Late-Qing China. *Asia Major* 17: 121–59.
Goossaert, Vincent. 2011. Is There a North China Religion? A Review Essay. *Journal of Chinese Religions* 39: 83–93. [CrossRef]
Gu, Jiegang 顧頡剛. 2014. *Miaofengshan* 妙峰山 [Mt. Miaofeng]. Shanghai: Shanghai Kexue Jizhu Wenxian Chubanshe. First published 1928.
Guo, Qitao. 2005. *Ritual Opera and Mercantile Lineage: The Confucian Transformation of Popular Culture in Late Imperial Huizhou*. Stanford: Stanford University Press.
Hamashima, Atsutoshi 濱島敦俊. 1992. The City-god Temples (Ch'eng-huang miao) of Chiangnan in the Ming and Ch'ing Dynasties. *Memoirs of the Research Department of the Toyo Bunko* 50: 1–27.
Hamashima, Atsutoshi 濱島敦俊. 2011. Communal Religion in Jiangnan Delta Rural Villages in Late Imperial China. *International Journal of Asian Studies* 8: 127–62.
Hansen, Valerie. 1990. *Changing Gods in Medieval China, 1127–1276*. Princeton: Princeton University Press.
Harrison, Henrietta. 2002. Village Identity in Rural North China: A Sense of Place in the Diary of Liu Dapeng. In *Town and Country in China: Identity and Perception*. Edited by David Faure and Tao Tao Liu. Houndmills, Basingstoke and Hampshire: Palgrave in Association with St Antony's College, pp. 85–106.
He, Xiaorong 何孝榮. 2000. *Mingdai Nanjing siyuan yanjiu* 明代南京寺院研究. Beijing: Zhongguo Shehui Kexue Chubanshe.
He, Ziquan 何兹全. 1986. *Wushinian Lai Han Tang Fojiao Siyuan Jingji Yanjiu* 五十年来漢唐佛教寺院經濟研究. Beijing: Beijing Shifan Daxue Chubanshe.
Johnson, David. 1985. The City-God Cults of T'ang and Sung China. *Harvard Journal of Asiatic Studies* 2: 363–457. [CrossRef]
Johnson, David. 2009. *Spectacle and Sacrifice: The Ritual Foundations of Village Life in North China*. Cambridge: Harvard University Asia Center.
Jordan, David K., and Daniel L. Overmyer. 1986. *The Flying Phoenix: Aspects of Chinese Sectarianism in Taiwan*. Princeton: Princeton University Press.
Katz, Paul R. 1998. *Taiwan de Wangye xinyang* 台灣的王爺信仰. Taipei: Shangding wenhua chubanshe.
Katz, Paul R. 2014. *Religion in China and Its Modern Fate*. Boston: Brandeis University Press.
Lin, Ching-chih. 2012. The Life and Religious Culture of the Freshwater Boat People of North China, 1700–Present. Ph.D. dissertation, UC Berkeley, Berkeley, CA, USA.
Lin, Meirong 林美容. 1988. You jisiquan dao xinyangquan: Taiwan minjian shehui de diyu goucheng yu fazhan 由祭祀圈到信仰圈—台灣民間社會的地域構成與發展. In *Disanjie Zhongguo haiyang fazhanshi yantaohui lunwenji* 第三屆中國海洋發展史研討會論文集. Edited by Yanxian Zhang. Taipei: Academic Sinica Sanmin zhuyi yanjiuyuan, pp. 95–125, Also in *Taiwan shi jingxuan* 台灣史精選. Edited by Xiaofeng Li, Yanxian Zhang and Baocun Dai. Taipei: Yushanshe, vol. 1, pp. 289–319.
Liu, Xinru. 1988. *Ancient India and Ancient China: Trade and Religious Exchanges, AD 1-600*. Delhi: Oxford University Press.
Liu, Xinru. 1989. Buddhist Institutions in the Lower Yangtze Region During the Sung Dynasty. *Bulletin of Sung and Yüan Studies* 21: 31–51.
Miller, Tracy. 2007. *The Divine Nature of Power: Chinese Ritual Architecture at the Sacred Site of Jinci*. Cambridge: Harvard University Asia Center.
Naquin, Susan. 2000. *Peking: Temples and City Life, 1400–900*. Berkeley: University of California Press.
Naquin, Susan, and Chün-fang Yü, eds. 1992. *Pilgrims and Sacred Sites in China*. Berkeley: University of California Press.
Nylan, Michael. 2012. The Power of Highway Networks during China's Classical Era (323 BCE–316 CE): Regulations, Metaphors, Rituals, and Deities. In *Highways, Byways, and Road Systems in the Pre-Modern World*. Edited by Susan E. Alcock, John P. Bodel and Richard J. A. Talbert. Chichester and West Sussex: Wiley-Blackwell, pp. 33–65.
Ouyang, Nan. 2022. The Ways of Traveling: A Historical GIS Examination of the Pilgrimage Routes Centered on Mt. Jiuhua in Late Imperial China. In *The Formation of Regional Religious Systems in Greater China*. Edited by Jiang Wu. London and New York: Routledge, pp. 93–112.
Overmyer, Daniel. 1978. Boatman and Buddhas: The Lo-chiao in Ming dynasty China. *History of Religions* 17: 284–302. [CrossRef]
Ryavec, Karl E. 2022. A Regional Systems Approach to the Origin and Spread of the Bon Religion of Tibet. In *The Formation of Regional Religious Systems in Greater China*. Edited by Jiang Wu. London and New York: Routledge, pp. 213–35.
Ryavec, Karl E., and Mark Henderson. 2015. A Core-Periphery GIS Model of the Historical Growth and Spread of Islam in China. *Historical Methods* 48: 103–11. [CrossRef]
Sangren, Paul Steve. 1987. *History and Magical Power in a Chinese Community*. Stanford: Stanford University Press.
Schipper, Kristofer M. 1977. Neighborhood Cult Associations in Traditional Tainan. In *The City in Late Imperial China*. Edited by William Skinner. Stanford: Stanford University Press, pp. 651–76.
Shao, Jiade 邵佳德. 2017. *Jindai Fojiao gaige de difangxing shijian: Yi Minguo Nanjing wei zhongxin 1912–49* 近代佛教改革的地方性實踐：以民國南京為中心1912–1949. Taipei: Fagu Wenhua.
Shi, Minfeng 施敏锋. 2016. *Minjian xinyang de Huzhou jingxiang: Yizhong quyu shehui shiye xia de "gonggong zhishi" tanjiu* 民間信仰的湖州鏡像: 一種區域社會視野下的 " 公共知識" 探究. Hangzhou: Zhejiang gongshang daxue chubanshe.

Shiba, Yoshinobu. 1977. Ninpo and its Hinterland. In *The City in Late Imperial China*. Edited by William Skinner. Stanford: Stanford University Press, pp. 391–439.
Shiba, Yoshinobu 斯波義信. 1988. *Sōdai kōnan keizaishi no kenkyū* 宋代江南経済史の研究. Tokyo: Kyūko Shoin.
Shryock, John Knight. 1973. *The Temples of Anking and Their Cults: A Study of Modern Chinese Religion*. New York: AMS Press. First published 1931.
Skinner, William. 1977. *The City in Late Imperial China*. Stanford: Stanford University Press.
Sutton, Donald. 1981. Pilot Surveys of Chinese Shamans, 1875–945: A Spatial Approach to Social History. *Journal of Social History* 15: 39–50. [CrossRef] [PubMed]
Tanaka, Issei. 1972. Development of Chinese Local Plays in the 17th and 18th Centuries. *Acta Asiatica* 23: 42–62.
Tanaka, Issei. 1985. Social and Historical Context of Ming-Ching Local Drama. In *Popular Culture in Late Imperial China*. Edited by David G. Johnson, Andrew J. Nathan, Evelyn Sakakida Rawski and Judith A. Berling. Berkeley: University of California Press, pp. 143–61.
Tanaka, Issei. 2016. *Chūgoku chinkon engeki kenkyū* 中国鎮魂演劇研究. Tokyo: Tokyo Daigaku Shuppankai.
ter Haar, Barend J. 1990. The Genesis and Spread of Temple Cults in Fukien. In *Development and Decline of Fukien Province in the 17th and 18th Centuries*. Edited by Eduard B. Vermeer. Leiden: E.J. Brill, pp. 349–96.
ter Haar, Barend J. 2014. *Practicing Scripture: A Lay Buddhist Movement in Late Imperial China*. Honolulu: Hawaii University Press.
ter Haar, Barend J. 2017. *Guan Yu: The Religious Afterlife of a Failed Hero*. New York: Oxford University Press.
Turner, Victor W. 1974. *Dramas, Fields and Metaphors: Symbolic Action in Human Society*. Ithaca: Cornell University Press.
von Glahn, Richard. 2004. *Sinister Way: The Divine and the Demonic in Chinese Religious Culture*. Berkeley and Los Angeles: University of California Press.
von Glahn, Richard. 2016. *The Economic History of China: From Antiquity to the Nineteenth Century*. Cambridge: Cambridge University Press.
Welter, Albert. 2022. Making and Marking Buddhist Sacred Space: Wuyue Buddhism and Its Influence in the Song Dynasty (960–1279). In *The Formation of Regional Religious Systems in Greater China*. Edited by Jiang Wu. London and New York: Routledge, pp. 35–57.
Wu, Jiang. 2008. *Enlightenment in Dispute: The Reinvention of Chan Buddhism in Seventeenth-Century China*. Oxford: Oxford University Press.
Wu, Jiang. 2015. *Leaving for the Rising Sun: Chinese Zen Master Yinyuan and the Authenticity Crisis in Early Modern East Asia*. Oxford: Oxford University Press.
Wu, Jiang, Daoqin Tong, and Karl Ryavec. 2013. Spatial Analysis and GIS Modeling of Regional Religious Systems in China: Conceptualization and Initial Experiment. In *Chinese History in Geographical Perspective*. Edited by Yongtao Du and Jeff Kyong-McClain. Lanham: Lexington Books, pp. 179–96.
Wu, Jiang, ed. 2022. Exploring Regional Religious Systems (RRS): Theoretical and Methodological Considerations. In *The Formation of Regional Religious Systems in Greater China*. London and New York: Routledge, pp. 1–31.
Wu, Weiwei 吳巍巍. 2008. Ziran, Renwen dili shuangchong shiye xia kan Jidujiao zai Minjiang liuyu de zaoqi chuanbo: Yi Meibuhui zai Minbei de chuanjiao huodong weili 自然，人文地理雙重視野下看基督教在閩江流域的早期傳播: 以美部會在閩北的傳教活動為例. In *Zhongguo Jidujiao quyu shi yanjiu* 中國基督教區域史研究. Edited by Jianming Chen 陳建明 and Jiafeng Liu 劉家峰. Chengdu: Ba shu shu she, pp. 204–24.
Xiong, Victor Cunrui. 2000. *Sui-Tang Chang'an: A Study in the Urban History of Medieval China*. Ann Arbor: Center for Chinese Studies, University of Michigan.
Yan, Gengwang 嚴耕望, and Qiwen Li 李啓文. 2005. *Weijin nanbeichao fojiao diligao* 魏晋南北朝佛教地理稿. Taipei: Zhongyang yanjiuyuan lishi yuyan yanjiusuo.
Yang, Ching Kun. 1961. *Religion in Chinese Society: A Study of Contemporary Social Functions of Religion and Some of Their Historical Factors*. Los Angeles: University of California Press.
Yang, Fenggang, Joey Marshall, and J. E. E. Pettit. 2022. Churches at the Margin: Mapping the Establishment of Protestant and Catholic Churches in China, ca. 1949–2004. In *The Formation of Regional Religious Systems in Greater China*. Edited by Jiang Wu. London and New York: Routledge, pp. 148–59.
Zhang, Weiran. 2022. Regional Systems of Guanyin Pilgrimages in the Lower Yangtze Delta during the Ming-Qing Period (1368–1912). In *The Formation of Regional Religious Systems in Greater China*. Edited by Jiang Wu. London and New York: Routledge, pp. 113–32.
Zhang, Xuesong 張雪松. 2015. *Fojiao "fayuan zongzu" yanjiu: Zhongguo zongjiao moshi tanxi* 佛教 " 法緣宗族" 研究: 中國宗教組織模式探析. Beijing: Zhongguo renmin daxue chubanshe.
Zhao, Shiyu 赵世瑜. 2002. *Kuanghuan yu richang: Ming Qing yilai de miaohui yu minjian shehui* 狂歡與日常: 明清以來的廟會與民間社會. Beijing: Sanlian shudian.
Zürcher, Erik. 2013. *Buddhism in China: Collected Papers of Erik Zürcher*. Edited by Jonathan A. Silk. Leiden: Brill.

religions

MDPI

Article

Religion in the Digital Age: An Irreversible Process

Kirk A. Bingaman

Graduate School of Religion & Religious Education, Fordham University, New York, NY 10458, USA; bingaman@fordham.edu

Abstract: Digital technology is fundamentally changing what it means to be human, in particular what it means to be a religious or spiritual human being, as it becomes an "irreversible" process. Indeed, the process is having a seismic impact on the religious and spiritual lives of "digital natives", who have never known a world without the Internet. This paper will seek to determine, by way of the Digital Theology method put forward by Sutinen and Cooper, if the religious-disaffiliation trend among younger populations is connected to the digitalization of society, either causally or correlationally, and what, if anything, religious leaders and faith communities can do about it. Research on the effects of high social media usage will be given special attention, in order to highlight the double-edged nature of digital technology.

Keywords: digital theology; digital natives; existential opportunity and threat; irreversible commitment; religious disaffiliation; social media

Nothing vast enters the life of mortals without a curse.

—Sophocles

1. Introduction

In 1976, more than a decade before the advent of the World Wide Web and the age of the Internet, the famed MIT computer scientist and artificial intelligence (AI) researcher, Joseph Weizenbaum, had noted the possibility if not probability that in the future we would reach the point of no return with the development of computer technology. With extraordinary prescience, the extent to which he himself may not have fully understood at the time, Weizenbaum (1976) would introduce the idea of "irreversibility" into the discussion about our relationship with computers. As he wrote in his seminal book, *Computer power and human reason: From judgment to calculation*, "Some human actions, the introduction of computers into some complex human activities, may constitute an irreversible commitment" (1976, p. 28). Half a century later, the "irreversible commitment" to technology that Weizenbaum had in mind has already become a fait accompli, which is no time at all when viewed through an evolutionary lens. Our "commitment" to digital technology has reached nothing short of a critical-mass dependency, so that even if we wanted to take a "pause" from any further development and usage, even if we wanted to "hit the brakes", our economy, along with our society, would collapse overnight (Harari 2017, p. 51). For example, the global financial markets are increasingly driven by digital algorithms; exponential technology has changed the face of healthcare and medicine; commercial aircraft, big and small, are guided by sophisticated computer systems; regional and national power grids are reliant on AI for maintenance and security; and so on, just to name a few. On an individual level, we are more reliant than ever on our smartphones and digital voice assistants, leading the theologian, Ilia Delio (2008) to conclude that even if we are not yet literal cyborgs, we are at the very least, through our active participation in a digital culture, "metaphoric cyborgs" (p. 162). To that, we could also add the powerful digital tool of social media, which we will be doing later in this paper, increasingly central to the study of religion, theology, and spirituality in a digital world. Indeed, the digital

Citation: Bingaman, Kirk A. 2023. Religion in the Digital Age: An Irreversible Process. *Religions* 14: 108. https://doi.org/10.3390/rel14010108

Academic Editors: Z. George Hong and Enzo Pace

Received: 22 November 2022
Revised: 3 January 2023
Accepted: 6 January 2023
Published: 12 January 2023

revolution has even prompted Delio (2008) to argue that the integration of computer technology in human life has already reached such a degree that "we must consider the possibility of being techno-sapiens" (p. 13). This may, in fact, sound a bit hyperbolic to the casual observer of digital technology, until we begin to grasp the unprecedented pace and scope of the digital transformation. For when we encounter something as unprecedented as artificial intelligence (AI), "we automatically interpret it through the lenses of familiar categories, thereby rendering invisible that which is unprecedented" (Zuboff 2020, p. 12).

What is important to keep in mind is the rapid advance and proliferation of digital technology, in only a matter of a few decades, which lends considerable support to Weizenbaum's irreversibility hypothesis. But as far as we have come in the development of digital technology, and we have come a long way in a relatively brief period of time, it is worth remembering that we are still in the early stages. We have not, in other words, seen anything yet, compared to what is coming in future years and decades. Elon Musk has famously used the example of the early and *very* primitive video game, Pong, to illustrate this point: "40 years ago, we had Pong, two rectangles and a dot", but today, "40 years later, we have photorealistic 3D simulations with millions of people playing simultaneously and it's getting better every year" (as cited in Kapoor 2019). To repeat, digital technology is getting better and better every year, and as such is "moving at a far faster rate than most of us can grasp" (Harari 2017, p. 50). Musk adds, "Soon we'll have virtual reality and augmented reality, and if you assume any rate of improvement at all, the games will become indistinguishable from reality" (as cited in Kapoor 2019). The same can be said of social media, as it gives way in its current shape and form to a more immersive, interactive, and interconnected social-networking experience within the emerging metaverse, with virtual reality becoming more indistinguishable from the so-called "real world".

The implications for human spirituality are staggering, which we can gather from the very beginning of Wildman and Stockly's book, *Spirit tech* (2021). It opens by quoting the robotics engineer, Mikey Siegel: "There is a depth to the potential of these technologies that is rarely addressed … What if the deepest aspects of human experience, which are often only accessible through twenty thousand hours meditating in a cave … , are all of a sudden accessible at the push of a button" (p. 1). This is hardly hyperbole, given that the development of enhancement technologies is already well underway, for example with cognitive augmentation via brain–computer interfaces (BCIs), as well as the genome-editing advances with CRISPR. It has led Buttrey et al. (2022) to suggest that "as enhancement technologies increase, we will be able to make ourselves stronger, calmer, able to think more quickly and sharply, maybe even have more intense and transformative spiritual experiences, and possibly become more virtuous with the help of biomedical moral enhancements (BME)".

In any case, whether it be the smartphone, digital assistants, video games, or, on a much larger scale, financial markets, transportation, energy security, biomedicine, and/or cognitive enhancement, computer technology has now become, to use Weizenbaum's (1976) word, "indispensable" to human society. "The computer", he writes, "becomes an indispensable component of any structure once it is so thoroughly integrated with the structure, so enmeshed in various vital substructures, that it can no longer be factored out without fatally impairing the whole structure". He adds:

> It is not true that the American banking system or the stock and commodity markets or the great manufacturing enterprises would have collapsed had the computer not come along "just in time". It is true that the specific way in which these systems actually developed in the past two decades, and are still developing, would have been impossible without the computer. It is true that, were all the computers to suddenly disappear, much of the modern industrialized and militarized world would be thrown into great confusion and possibly utter chaos. The computer was not a prerequisite to the survival of modern society in the post-war period and beyond; its enthusiastic, uncritical embrace by the most "progressive" elements of American government, business, and industry quickly

> made it a resource essential to society's survival *in the form* that the computer itself had been instrumental in shaping. (pp. 28–29)

2. The Emerging Field of Digital Theology

The remainder of the paper will focus on the impact of digital technology on lived experience, including religious and spiritual experience, through the lens of a fairly recent research modality, namely Digital Theology. I will begin with an overview of the Digital-Theology method put forward by Sutinen and Cooper (2021), followed by a discussion of the double-edged nature of digital technologies, giving special attention to the powerful influence of social media, and concluding with a focus on technology's impact on religious and spiritual preferences, in particular those of digital natives. If digital technology has in fact become an indispensable component of human life, becoming thoroughly integrated into society as a whole and therefore enmeshed in various vital structures and substructures, then it follows that the enmeshment would also extend into the world of religion. For example, as Campbell and Tsuria (2022) have found, "the interdisciplinary study of religion and the Internet highlights the growing recognition that digital media have become embedded in our everyday lives and a common platform for spiritual engagement" (p. 7). Or, as Sutinen and Cooper have put it, in their important book, *Digital Theology: A computer science perspective*, "the proliferation of information technology over the past thirty years has driven fast-paced change throughout every aspect of society—the ways in which we work, learn, socialize, date, interact with family and engage in acts of worship have all adapted to embrace a new technology" (p. 1). Note the authors' careful and precise choice of words: the dramatic advance of digital and information technology has driven *fast-paced change* throughout *every* aspect of society, including the way we engage in acts of worship. This, of course, would include more traditional forms of religious practice and worship, as well as the spiritual practices of those not religiously affiliated, the so-called "religious nones" who famously identify as "spiritual but not religious (SBNR)". In either case, digital technology has become an indispensable component of our religious and/or spiritual lives, more thoroughly integrated with and enmeshed in our practices. And yet, "while the role of technology in most walks of life has been well documented, the role of technology in the expression of faith and, conversely, the role of faith in technology, have thus far received surprisingly little discourse" (Sutinen and Cooper 2021, p. 1).

This is more than a little surprising, when we stop to consider how dependent religion was already becoming on technology in the years leading up to 2020, and how much more dependent it has become as a result of the COVID-19 pandemic. In a 2018 book, I addressed the issue of *Pastoral and spiritual care in a digital age*, followed by, in a 2020 article, the issue of "Religious and spiritual experience in the digital age", noting that pastoral and spiritual care providers are now dealing with evolutionary forces of an unprecedented nature. In his review of the 2018 book, David Hogue (2020) had remarked that it "entered an arena where few pastoral theologians have feared to tread", and as such "it is hoped that more pastoral theologians will follow" (pp. 151–52). It is a curious thing that the role of technology in the expression of religious faith, as well as in the field of pastoral theology and the practice of spiritual care, has received such little discourse, when it has become nothing less than a game-changer. Nevertheless, Hogue (2020) reminds us, "pastoral theologians and practitioners who work intimately with suffering persons are in a unique position to make critical assessments of the risks and potentials [of technology] and provide guidance oriented toward healing and wholeness" (p. 151).

There can be no doubt that digital technology is here to stay, even in the context of religious faith communities, whether we want to talk about it or not. It has become so integrated into the fabric of society, so enmeshed in the various substructures of daily living, that it is even now an indispensable and irreversible commitment across the board. And, its growing power and reach have only been extended that much more in the wake of the pandemic, as faith communities make greater use of the digital technology resources at their disposal. As Heidi Campbell (2021) has observed, "religious leaders who had

been technologically resistant in early 2020 have had to rethink their critiques of technology; indeed, many have had to embrace it for their survival". For example, the idea of livestreaming Sunday worship services was not even on the radar of many religious faith communities at the beginning of 2020, but months later had become commonplace via Zoom. Three years later, after most churches have resumed in-person worship, many have decided to continue offering a livestreaming option, as well as a recording of the service posted on YouTube.

"The COVID pandemic which began in 2020", writes David Wilkinson (2021) in the foreword to the book, *Digital Theology*, "has changed our view of the world in many ways", which is something of an understatement. He urges religious leaders to be mindful of the new terrain:

> Broadcasting of services on the web became the norm rather than the preserve of mega churches. Small groups no longer met over tea and biscuits in the living room of a house but over Zoom and the constant refrain of "you are on mute". Pastoral conversations were offered by church leaders on digital platforms and the guardians of faith and order had to consider whether communion could be done online. These questions of mission, liturgy, community, and discipleship have been talked about for over a couple of decades by digital enthusiasts and by those who have been excluded from church life on grounds of accessibility. But for many in the church these questions were not seen to be central to our understanding of the mission of God in the world. (p. xv)

Wilkinson (2021) encourages religious leaders and spiritual care providers not to "sleep walk" into the future, because we have an aversion to digital technology, because we are afraid of the advances of AI, and/or because we hope that God will somehow, someway intervene to steer us in the right direction. Put another way, now is not the time for us to "look away", for we are, in the words of the MIT physicist, Max Tegmark (2018), "the guardians of the future of life now as we shape the age of AI" (p. 335). Tegmark's comment, coming from a scientist, almost sounds theological, *is* in many ways a theological statement. How much more is his appeal to be guardians of the future, primarily intended for the scientific community and humankind in general, applicable to religious leaders and faith communities who worship and serve a God of the future? There is obviously an urgent need for more theological reflection and discourse vis à vis digital technologies, and how they are changing everything, including what it means to be human and what it means to be a person of religious faith. Precisely because we still have some choice regarding how we will use the current and emergent technologies, "we had better understand what is happening and make up our minds about it before it makes up our minds for us" (Harari 2017, p. 55).

For pastoral theologians, religious leaders, and faith communities, this presupposes intentional theological reflection and discussion, which, as Sutinen and Cooper (2021) have noted, have thus far been in fairly short supply. Fortunately, there is some hope that this might be starting to change, thanks in large part to the new and emerging field of Digital Theology, which is gaining momentum by "exploring the complex and rapidly evolving relationship between the fields of technology and theology" (Sutinen and Cooper 2021, p. 1). Digital Theology is grounded in the foundational work of Paul Tillich (1973), specifically his method of correlation, "in which religious and theological knowledge and experience is held in dialectical and dialogical tension with the findings of science" (Bingaman 2018, p. xi). To Tillich's correlational method, I would also invite digital theologians to ground their important work in Ian Barbour's (1997) approach to science and religion, which intentionally goes beyond a healthy *dialogue* between two very different conversation partners, toward a more robust *integration* of scientific knowledge and findings into our theological reflection and discourse. Barbour (1997), in his groundbreaking *Religion and science: Historical and contemporary issues,* has stated that it is important for religion to be "open to an extension of what are taken to be the boundaries of acceptable science and religion and to the possibility of new paradigms that are more inclusive" (p. 98).

But what is Digital Theology, and what are its defining characteristics? There is of course some overlap with its predecessor, digital religion; there are also some notable differences. "While digital religion explores the integration of technology within the phenomenon of religion, the perspective of Digital Theology is that of a given faith and its intellectual conceptualization as digital representation" (Sutinen and Cooper 2021, p. 1). The "given faith" could be any faith tradition, although in the case of Sutinen and Cooper (2021), their focus is on Christian theology and the Christian faith tradition. More specifically, their view of Digital Theology "focuses on expression of faith, as do the classic fields of Christian theology: exegetics, systematic theology, church history, and practical theology when they explore and analyze the sources, methods, trends, and practices of the intellectual exercise of expressing and conveying faith as various forms of information" (Sutinen and Cooper 2021, p. 1). The interrelatedness between the expression of faith and the classic fields of Christian theology, "between faith as spiritual belief and its intellectual, tangible, expression as creed, doctrine, or concrete behavior forms the basis for the dialogue of theology and computer science applied in IT, as Digital Theology" (Sutinen and Cooper 2021, p. 1).

This is not to suggest that the authors' approach is exclusively or even primarily theology-driven, as we might assume from the title of their book, *Digital Theology*, which is also the name of the emerging field itself. But the subtitle of the book, *A computer science perspective*, is most telling, and lets us know ahead of time that a central focus of their inquiry will be the application and use of the powerful digital technologies that are at the disposal of clergy, faith communities, and anyone else in today's world who identifies as religious or even "spiritual but not religious". This should not come as a surprise, as both authors are in fact computer scientists. They write:

> Thus far, the discussion and debate surrounding Digital Theology has tended to be theology led, with reflections on the applications and uses of technology in faith communities being framed from a theological perspective. The field of computer science has yet to offer a robust response to this discourse and, therefore, the unique perspectives which computer scientists can bring to this fascinating topic have so far not reached the mainstream. This book seeks to . . . present a discussion on Digital Theology from a computer science, or more extensively computing, perspective—by exploring what the field might encompass, the types of problems the field might address and the approaches which the field might take, all through the lens of computer scientists. (Sutinen and Cooper 2021, p. 2)

While both authors have a background in computer science, one of them is also an ordained priest, which helps to explain the additional focus on the contextual application of theory and theology to lived experience in a digital age. As the discussion and debate surrounding Digital Theology has thus far tended to be theology led, so has it "also tended, so far, to be academically focused—the debate has largely taken place in academic journals and at research symposia" (Sutinen and Cooper 2021, p. 2), in what some would refer to, colloquially, as the "ivory tower". Here, it might be worth keeping in mind the distinction between religious and theological studies: at the risk of oversimplification and overgeneralization, the former primarily takes an academic and theoretical approach to the study of religion, which is important, whereas the latter, while still academically and theoretically oriented, is also concerned with the practical application of the theory to lived experience in today's world. Similarly, the work of Sutinen and Cooper (2021) "seeks to address a wider audience than the typical academic circles who have tended to be the primary target audience for work published to date" (p. 2), whether in the emergent field of Digital Theology and/or the more established field of digital religion. For example, the authors are very intentional about engaging "readers from a variety of backgrounds—academics, students, technical developers, leaders of diverse churches and denominations, religious laypeople and the curious individual simply intrigued by how emerging technology might shift faith-based behaviors and practice and by how faith might inspire new approaches to technical design and innovation" (Sutinen and Cooper

2021, p. 2). To the list of "readers from a variety of backgrounds", we might want to add the "religious nones" or the "spiritual but not religious", along with the religiously disaffiliated. They, too, could also benefit from learning how emerging technologies are having a profound impact on contemporary religion *and* spirituality, and how spirituality, along with religious faith, might inspire more hopeful, ethical, and humane approaches to the use of very powerful digital tools and platforms. In sum, while Digital Theology, like digital religion, is very much grounded in theory, it is also praxis-based, with a distinct focus on how digital technology is changing what it means to be a human being and, by extension, what it means to be a religious or spiritual person in a techno-driven world.

The importance of developing an in-depth understanding of digital culture cannot be overstated, if we are in fact in the midst of an irreversible evolutionary process. While some of us may have been hoping that the digital age would be short-lived, a temporary thing that would soon be passing, the reality is that it is here to stay, and it is changing everything. Indeed, if we have become metaphorical cyborgs in a sense, so attached to our digital devices that even now we are witnessing the human–machine merger, then as Harari (2017) has said, there is an urgency that we understand what is happening and make up our minds about it before digital technology and AI make up our minds for us. Rarely do we stop to consider the power of our digital devices, for example the smartphone we now carry with us at all times. It has become so commonplace that we take it all for granted, a gadget for filling our calendars, mapping our driving route, making purchases and paying bills, playing video games, texting and emailing, taking pictures and building photo albums, downloading music, surfing the Internet, accessing social media platforms, and so on and so on. And, lest we forget, it is also a *phone*.

When we stop to consider the amount of digital power we have at our fingertips, inside a device that fits inside our hip pocket, it literally staggers the imagination: the smartphone we use today has "more computer power than *all* of NASA when it put two [astronauts] on the moon in 1969" (Kaku 2014, p. 9), millions of times more computing power to be more specific. "This may sound like hyperbole", writes Murray Shanahan (2015), working in the field of cognitive robotics, "but today's emerging technologies have a potency never before seen" (p. xxi). The rapid advance and increasing power of digital technology is an extraordinary development, and to think that it is only the beginning. Only forty years ago, we were happy playing Pong, and before long, as Elon Musk has said, we will have virtual reality and augmented reality, so that the games will become indistinguishable from reality. This is a pivotal moment in human history, in the life of the church, with "a window of time and opportunity to very carefully reflect on how we intend to go about navigating the uncharted landscape before us" (Bingaman 2018, p. 103). Pastoral theologians, religious leaders, spiritual care providers, with the resource of Digital Technology, can be much more intentional about being, in the words of Tegmark (2018), the guardians of the future of life in a digital world, co-creators with God if we put it more theologically, helping to guide the momentous change "towards wholesome and loving ends" (Peters 2007, p. 182).

The need for immediate theological reflection about the growing reach and power of digital technology, and its "wholesome and loving" application within society in general and in religious faith communities in particular, should now be more obvious. But, as Ilia Delio (2008) has made clear, "it cannot be merely a religious way of dealing with technology, as if it were external to who we are; rather, technology has become part and parcel of who we are" (pp. 163–64). Perhaps, to a certain extent, this has always been the case with any technology throughout human history. And yet, there is something fundamentally different about *digital* technology, and the way that "life on the screen", to use Sherry Turkle's (1997) words, has completely altered and transformed human lived experience, in a matter of a few decades no less. The rate of transformation is therefore historically unprecedented. As such, it is not enough for religion and theology "simply to come to terms with the integration of technology in daily life", but rather, "we must begin to see technology as integral to the whole evolutionary process because it has driven us to a whole new level

of culture and consciousness" (Delio 2008, p. 163). We could also say that the digital revolution is driving us, potentially, to a whole new understanding of dynamic divine presence, as God, in keeping with the words of the prophet, is forever doing a *new thing* (Isaiah 43:19, RSV). The "new thing" occurring in the digital age is, once again, historically unprecedented, which raises all kinds of questions about God, religion, theology, and the expression of religious faith. In terms of the study of God and of active divine presence in today's digital world, we will need, according to Sutinen and Cooper (2021), to go "much further than simply *using* technology to study God;" rather, in a methodological move that parallels the theological perspective of Delio (2008), we will need an approach in which digital technology is "*central* to the study of God" (p. 15).

3. Results: A Double-Edged Sword

In making technology an integral component of our theological reflection, as well as central to the study of God, we will also need to keep in mind the observation of Richard Rogers (2015), who almost a decade ago in his groundbreaking book, *Digital Methods*, had already announced "the end of the virtual/real divide" (p. 38). Moreover, Rogers (2015), a self-described "web epistemologist" and, more formally, director of the Digital Methods Initiative at the University of Amsterdam, had characterized the web, and particularly a search-engine-based web, as "a potential collision space for alternative accounts of reality" (p. 31). Almost ten years later, we can now say that the search-engine-based web in general, and its social-media offspring, are far more than a *potential* collision space for alternative and competing accounts of reality. They have become, in so many ways, the quintessential "collision space" in today's world, a space that can at times reflect the very best of humankind, while at other times reflecting the most disturbing and alarming aspects of human nature. For example, in terms of putting social media and networking to good use toward loving and compassionate ends, "the potential to spread information at breakneck speed in countries where information may be repressed or controlled is a vital tool", writes the neuroscientist, Susan Greenfield (2015), as is raising consciousness about humanitarian and refugee crises, crowdfunding for disaster relief, and helping patients and families locate the best treatment facilities for medical implants and transplants (pp. 148–49). We can even add to this brief list the delivery of religious resources in faith communities, via social media, such as worship services, Bible studies, prayer groups, and so forth, which before the pandemic would have been unavailable to those congregants excluded from church life on the grounds of accessibility. Conversely, "some of the very worst aspects of being all too human . . . are now being given free rein throughout the uncharted territory of cyberspace" (Greenfield 2015, p. 268), turning social networking into a breeding ground for misinformation, harassment, bullying, hate speech, and religious and political extremism.

It is important to keep in mind that digital technologies, and more specifically social media platforms, are something of a double-edged sword, or, as Susan Greenfield (2015) has put it, "an unprecedented and complex cocktail of opportunity and threat" (p. 23). Indeed, the emerging field of Digital Theology is attempting to hold the good and the bad, the opportunity and threat in dialectical tension, as it continues to develop. For example, Sutinen and Cooper (2021) refer to *The Social Dilemma* (Orlowski 2020), the critically acclaimed documentary that premiered in 2020, as a powerful resource for better understanding the threat posed by the juggernaut of social media. "An indictment of the tech industry, the film succinctly lays out the damage being done by companies such as Facebook, Google and Twitter through their social media platforms and search engines . . . and helps explain so much of the craziness we see right now in the real world" (Crust 2020). Below is what Sutinen and Cooper (2021) glean from the film, for the purposes of Digital Theology:

> The movie warns of the [pernicious] role of artificial intelligence that has turned what was expected to be digital tools for enhancing social connections, open participation and global sharing into a manipulation engine that transforms humans into products for sourcing marketing data and addicts of 24/7 connectivity and

> recognition by likes. Demonization, a term that theologian Paul Tillich (1973) uses for a process where an idea with a good intention transforms to its evil opposite, has altered technology with an agenda to make the world a better place into an agent for the age of misinformation . . . Digital Theology has a mission as a countermovement to digital demonization—sanctification of technology for the prosperity and liberty of humanity. (p. 10)

Sutinen and Cooper (2021) have good reason for highlighting *The Social Dilemma*, which features interviews with tech insiders, those who have worked with some of the major tech companies, including the technology ethicist and founder of the Center for Humane Technology, Tristan Harris. A former design ethicist at Google, Harris testified before the United States Congress in 2020, urging lawmakers to take more decisive regulatory action vis à vis the powerful social-media industry. In my 2018 book, *Pastoral and spiritual care in a digital age: The future is now*, I had argued that "technology, in and of itself and like any other 'raw material,' is not good or bad, but rather a neutral entity; it simply 'mirrors' the very best and the very worst of humanity" (p. 31). But after listening to Harris' testimony before the U.S. Congress, after watching the interviews with him and other tech insiders in *The Social Dilemma,* I no longer believe that digital technology, in the form of social-media platforms, is in any way a "neutral entity". It is much too powerful and influential to be neutral, when it operates on "a business model of commodifying the attention of billions of people per day, sorting tweets, posts, and groups to determine which get the most engagement (clicks, views, and shares)—what gets the strongest emotional reactions" (Harris 2021).

To be sure, the commodification of attention is anything but neutral, when a large target audience is children and adolescents still in their formative years. But it is not only younger populations who are targeted; through less-than-transparent neuromarketing practices, social media companies find ways to commodify the attention of everyone, young and old. "These commodification platforms", writes Harris (2021), "have warped the collective psyche", for they ultimately lead us to "narrower and crazier views of the world". Harris (2021) adds:

> YouTube's recommendation algorithms, which determine 70% of daily watch time for billions of people, "suggest" what are meant to be similar videos but actually drive viewers to more extreme, more negative, or more conspiratorial content because that's what keeps them on their screens longer . . . Recommendation systems like this have created a downward spiral of negativity and paranoia, slowly decoupling billions of people's perception of reality from reality itself. Seeing reality clearly and truthfully is fundamental to our capacity to do anything. By monetizing and commodifying attention, we've sold away our ability to see problems and enact collective solutions. This isn't new. Almost any time we allow the life support systems of our planet or society to be commodified, it drives other breakdowns.

Harris (2021) analysis of social media's hold on the collective psyche, not to mention the developing brain of "digital natives" during their most formative years, is more than a little sobering, which is why Sutinen and Cooper (2021) explicitly call our attention to *The Social Dilemma* documentary. As religious leaders and educators make greater use of digital technology tools, as well as social media platforms, we need to keep in mind that digital technology is inherently a double-edged sword, a complex cocktail of opportunity and threat, with important implications for religion, spirituality, and mental health. In recent years, there have been important research studies focusing on the impact of social media, and whether there is any correlation with the noticeable decline in human empathy simultaneous with the sharp rise in mental-health disorders. The landmark study of Konrath et al. (2011), director of the Interdisciplinary Program on Empathy and Altruism Research at Indiana University, a meta-analysis of fourteen thousand college students spanning more than thirty years, revealed a significant decline in empathy, with a much steeper drop in the latter years of the study. Why? Konrath et al. (2011) note that the

precipitous drop in empathy, in the final years of the study, happens to coincide with "the meteoric rise in popularity of social networking sites . . . as younger people more frequently remove themselves from deep interpersonal social situations and become immersed in isolated online environments" (p. 183). Or, as Greenfield (2015) puts it, commenting on the study, it is "a time frame that corresponds well with the advent of social networking among digital natives" (p. 36).

Is it simply a coincidence, the sharp decline of empathy and the rapid and powerful advance of social media? I think not, if we are guided by the evidence before us. This is not to say that social media platforms are necessarily the *cause* of the steep drop in empathy, along with the downward spiral of negativity and paranoia. There may very well be a causal connection, but at the moment we do not know this for sure; more research is needed. What we do know for certain is that there is at least a correlation between the advent and proliferation of social networking sites and a reduction in empathy among college students. "These physically distant online environments", the authors of the study conclude, "could functionally create a buffer between individuals, which makes it easier to ignore others' pain or even at times inflict pain on others" (Konrath et al. 2011, p. 183). Perhaps more fundamentally, they create a buffer within one's own psyche, between more primitive limbic responses and higher-order executive functioning. "There is ample evidence", writes Van Eyghen (2021), "that dispositions rooted in evolved psychology tend to resurface when subjects lack the time or resources for adequate reflection". This is a finding of extreme importance, when viewed in the context of a fast-paced if not frenetic digital world, with life on the screen demanding more and more of our time and attention. It could very well be that we will need the help of biomedical moral enhancements (BME) to ultimately surmount our primitive dispositions, to become more virtuous if not spiritual in a digital world. Apropos to life on the screen, Van Eyghen (2021) adds: "The evidence suggests that although humans can overcome evolved dispositions on many occasions, the dispositions tend to resurface when humans let down their cognitive guard and act unreflectively".

4. Discussion: Beyond the Point of No Return

In a way, social media is neutral, in the sense that it can be what we want it to be: simply an online photo album and/or memory book, for example, nothing more, nothing less if we so choose. The problem is that we often have less choice than we realize, as powerful neuromarketing forces and algorithms conspire against our ability to think rationally when we are using the sites. Sean Parker, the former president of Facebook, made this very clear a few years ago, when he stated categorically that the goal of the company has been all along, "How do we consume as much of your time and conscious attention as possible?" (as cited in Pandey 2017). At the time, it was a stunningly transparent revelation, albeit post facto, after he had left Facebook after making billions of dollars. Nevertheless, it gives us a clear window into the covert operations of Facebook executives in designing a "social validation feedback loop:" "We needed to sort of give you a little dopamine hit every once in a while, because someone liked or commented on a photo or a post or whatever . . . [We're] exploiting a vulnerability in human psychology" (as cited in Pandey 2017). Not surprisingly, the "mission to exploit", for lucrative gain, has contributed to a sharp increase in rates of depression and anxiety for frequent users of social media, adolescents and young adults in particular, even *before* the pandemic. But, once again, while it is not entirely clear at the moment if Facebook and other social networking sites are the *cause* of this sharp increase in mental health disorders, there is plenty of evidence that the association is at the very least correlational. Therefore, "even if social media are not causing this problem, they surely are not helping to solve it" (Bermúdez 2017, p. 68).

What we do know for sure is that there is a causal link between high usage of social media and mental health risk, if the individual is using networking sites for frequent "social comparisons". Media, observes Rončaková (2021), in keeping with Sean Parker's revelation, very intentionally strive to arouse an emotional response in all of us, "bound by a specific media event" (p. 32). A landmark study in 2014, "Seeing everyone's highlight reels: How

Facebook usage is linked to depressive symptoms", made very clear the "specific media event", which has subsequently been confirmed by other studies:

> These studies found that spending more time on Facebook and/or viewing Facebook more frequently, provides people with the opportunity to spontaneously engage in Facebook social comparisons (of any kind), which in turn, is associated with greater depressive symptoms. This pattern of higher depressive symptoms after engaging in Facebook social comparisons may be especially true for college students since they may still be struggling to establish their identities apart from their families, and consequently, may be more susceptible to peer influences. Thus, the current research holds important implications for general populations and, in particular, college students who are depressed and might also be addicted to Facebook. (Steers et al. 2014, p. 728)

We can only imagine, for example, what the "social feedback validation loop" does to the psyche of an adolescent girl who is struggling with body image; she becomes trapped in a vicious cycle of social comparison, via Facebook's covert exploitation, from which there is seemingly no exit. Once the initial "dopamine hit" wears off, after receiving a "like(s)" from a friend, the extended time she spends on the screen, engaging in social comparisons, can make her feel worse rather than better, more anxious and depressed than she was feeling before. This scenario, which occurs in the lives of billions of people of all ages every day, in the lives of our congregants, has important implications for pastoral theologians, religious leaders, and spiritual care providers; it is very much an ethical *and* theological issue, a matter of justice when the social-networking system is "predicated on constant social comparison and systemic hijacking of the human drive for connection" (Harris 2021). It is also an issue of power, given the enormous asymmetric power that social networking companies have over our lives in general, and over the lives of vulnerable congregants in our care. "Any asymmetric power structure", Harris (2021) rightly argues, "must follow the fiduciary or 'duty of care' model exemplified by a good teacher, therapist, doctor, or care worker—that is, it must work in the service of those with less power". To this, we could add the duty of care exemplified by pastoral leaders, who are sometimes quintessentially equipped, by way of a particular faith tradition, with an overt justice orientation when confronted with the exploitation of those most vulnerable and less powerful.

This is clearly a pivotal time to be a pastoral leader, a religious educator, a spiritual care provider, as we witness firsthand, on the "front lines" as it were, the alarming rise in mental health disorders simultaneous with a steady decline in human empathy and compassion. As Jamil Zaki (2019) has noted, with the social networking platforms foremost in mind, "The modern world has made kindness harder" (p. 7). Few, if any of us, would disagree with his assessment, if we have been paying attention to the erosion of social cohesion in today's digital world. Zaki (2019) adds:

> News organizations and social media platforms profit from our divisions. Outrage is one of their products, and it is a growth industry. Modern society is built on human connection, and our house is teetering. For the past dozen years, I've researched how empathy works and what it does for us. But being a psychologist studying empathy today is like being a climatologist studying the polar ice: Each year we discover more about how valuable it is, just as it recedes all around us. (pp. 8, 10)

As much as the world of digital technology presents us with an array of formidable and unprecedented challenges, as much as we may have mixed feelings about it or not even like it, we will need to keep in mind that it is not going anywhere anytime soon, if ever. It has become an indispensable component of everyday life throughout the world, an irreversible commitment as Joseph Weizenbaum (1976) predicted almost half a century ago. Once it is so thoroughly integrated into the fabric of human society, so enmeshed in vital substructures, it cannot, as he said, be factored out without the world being thrown into utter chaos. Nor would we, even if we could, want to factor it out, for digital technology, artificial

intelligence, even social media for that matter also constitute an existential opportunity *IF* we can find ways to guide the process toward loving and compassionate ends for all people, rather than to profit a powerful few. Moreover, to view the digital world one-sidedly as a toxic culture with little if any redeeming value, "is to risk alienating the 'digital natives' among us", young adults and younger who have no experience and memory of a former time before the advent and proliferation of digital technology (Bingaman 2018, p. 24). "Digital natives", writes Greenfield (2015), "know no other way of life other than the culture of Internet, laptop, and mobile" (p. 6), which is a fact of extreme importance for religious leaders and faith communities.

Gary Small, in his research more than a decade ago at the UCLA Brain Research Institute, discovered that as a consequence of the "overwhelming and early high-tech stimulation of the digital native's brain, we are witnessing the beginning of a deeply divided *brain gap* between younger and older minds—in just *one* generation" (Small and Vorgan 2009, p. 3). This dramatic leap in human brain evolution reflects the epistemological framework of digital natives: their fundamental way of knowing has always been techno-driven. He goes on to say, with words that capture very well the double-edged nature of digital technology:

> What used to be simply a *generation gap* that separated young people's values, music, and habits from those of their parents has now become a huge divide resulting in two separate cultures. The brains of the younger generation are digitally hardwired from toddlerhood, often at the expense of neural circuitry that controls one-on-one people skills. Individuals of the older generation face a world in which their brains *must* adapt to high technology, or they will be left behind—politically, socially, and economically . . . During this pivotal point in brain evolution, [digital] natives and immigrants alike can learn the tools they need to take charge of their lives and brains, while both preserving their humanity and keeping up with the latest technology. (Small and Vorgan 2009, pp. 3–4)

This helps to explain the religious orientation of many digital natives, or more accurately the lack thereof, as religious disaffiliation has taken firm hold among millennials and younger. Life on the screen has fundamentally altered what it means to be religious or spiritual, what it means to be human for that matter, and the process I would argue is becoming irreversible. This is obviously a significant, perhaps even insurmountable problem for religious faith communities, as many congregations, already with declining church membership, now face the prospect of disaffiliation becoming the norm among younger populations. In terms of religious disaffiliation numbers in the United States, it is worth noting that younger Americans are disaffiliating earlier than older Americans: "Among young adults (age 18 to 29) today, roughly three-quarters (74 percent) report that they were age 17 or younger at the time they no longer identified with their formative religion, including about one in four (26 percent) who say they left before their teenage years", whereas "for older Americans who have disaffiliated, it was much more typical to leave when they were of college age or older" (Cox 2022). Some still hold out hope that this merely reflects what Friedrich Schweitzer (2004) has called "life-cycle effects". The children and grandchildren of the baby boomers, so the thinking goes, who are leaving the religion of their youth in ever-increasing numbers, will inevitably return later when they are all grown up, just like their baby boomer parents and grandparents (Bingaman 2020, p. 292). I would urge extreme caution with this overly optimistic assumption, for it is quite possible, maybe even likely that digital natives leaving the church today and, in the future, may never return. Recall that digital natives, with a digitally hardwired brain, see the world in a fundamentally different way, which would include different ways of knowing when it comes to religion. More specifically, as Rončaková (2021) has found, people who are drawn to online religion and spirituality, which is ever the case with digital natives, are "typically averse to authority; they want to choose their own symbols, values, associations and ideas in order to construct their own identity and their own spirituality" (p. 30). It remains for

future researchers to see if there is a clear causal link between this digital hardwiring, from one's earliest formative years, and the growing trend in religious disaffiliation.

In the meantime, pastoral theologians, religious leaders and educators, and faith communities would do well to follow the research focusing on the correlational link between high usage of digital technology, in particular social media, and religious disaffiliation. For example, one study conducted at Baylor University, which has been corroborated by subsequent studies, found that frequent Internet use is "associated with increases in being religiously unaffiliated and decreases in religious exclusivism" (McClure 2017, p. 481), certainly reflective of the lived experience of digital natives. Put another way, "being online increases the likelihood of being religiously unaffiliated, and regardless of one's affiliation, Internet use also reduces the likelihood of maintaining an exclusivist posture toward one's own religious tradition" (McClure 2017, p. 494). When it comes to religion and spirituality in the digital age, particularly that of digital natives, there is a distinct shift away from religious exclusivism toward greater openness to a multiplicity of different religious and spiritual perspectives, clearly a reflection of life on the screen. "Because of the overwhelming variety of worldviews, beliefs, and religious ideas that are part and parcel of one's online experience, the Internet encourages tinkering with an assortment of spiritual options, and rejecting the exclusive truth claims of any one particular religious tradition becomes more likely" (McClure 2017, p. 494). To the image of "tinkering", we could also apply the "supermarket" metaphor put forward by Wildman and Stockly (2021): digital natives, having the freedom to "mix and match" from a wide variety of religious and spiritual perspectives, to "explore and customize", can if they want "shop from any aisle" (p. 4). Perhaps it might seem foolhardy for religious leaders and faith communities to become more digitally invested, paradoxically embracing that which is helping to erode the foundations of religion. Indeed, this is something of a dilemma, in light of the Baylor study, for "while the Internet may be used beneficially to express or receive a particular religious message, Internet technology may also undermine the exclusive truth of that very message" (McClure 2017, p. 494).

Sutinen and Cooper (2021), while aware of the risks involved, are nonetheless undeterred in encouraging religious leaders and faith communities to take the risk, to work in the dialectical tension between opportunity and threat. They believe it is possible, if we consider how various churches worldwide in 2020 managed to move quickly, out of necessity, to an online and/or hybrid ministry:

> Rapid research conducted to explore the response to the COVID-19 pandemic of churches in the UK, Finland, and Namibia (Cooper et al. 2021) found that the churches moved quickly and enterprisingly to embrace a wide range of new technologies to quickly provide for their congregations. Not only did the churches surveyed offer up Sunday services online, but many extended the wider offering of their church communities using online technologies including, for example, small group meetings, children and youth activities, prayer meetings, and quizzes. This enterprising response is interesting to observe and might also reflect the adoption of a "startup mentality", whereby the digitally literate might quickly apply technological solutions to a range of application fields, thus renewing the fields themselves … Clearly, such online Christian communities have the potential to evolve over time as technology improves and develops, enhancing the experience of users (e.g., using virtual or augmented reality or other remote presence technology to create an increased sense of physical colocation). A key challenge for now is the ability to design technology which changes the experience from that of being a remote participant to that of being a teleparticipant. (pp. 18, 20)

Funding: This research received no external funding.

Data Availability Statement: Not applicable.

Conflicts of Interest: The author declares no conflict of interest.

References

Barbour, Ian G. 1997. *Religion and Science: Historical and Contemporary Issues*. New York: Harper.

Bermúdez, Juan Pablo. 2017. Social media and self-control: The vices and virtues of attention. In *Social Media and Your Brain: Web-Based Communication Is Changing How We Think and Express Ourselves*. Edited by Carlos G. Prado. New York: Praeger, pp. 57–74.

Bingaman, Kirk A. 2018. *Pastoral and Spiritual Care in a Digital Age: The Future is Now*. Lanham: Lexington Books.

Bingaman, Kirk A. 2020. Religious and spiritual experience in the digital age: Unprecedented evolutionary forces. *Pastoral Psychology* 69: 291–305. [CrossRef]

Buttrey, Michael, Moira McQueen, and Tracy J. Trothen. 2022. Faster, higher, more moral: Human enhancement and Christianity. *Religions* 13: 354. [CrossRef]

Campbell, Heidi A. 2021. What can the church learn from the pandemic about engaging with technology? *Faith and Leadership*. March 9. Available online: https://faithandleadership.com (accessed on 20 November 2022).

Campbell, Heidi A., and Ruth Tsuria. 2022. *Digital Religion: Understanding Religious Practice in Digital Media*. London: Routledge.

Cooper, Anthony-Paul, Ilkka Jormanainen, Annastasia Shipepe, and Erkki Sutinen. 2021. Faith communities online: Christian churches' reactions to the COVID-19 outbreak. *International Journal of Web Based Communities* 17: 99–119. [CrossRef]

Cox, Daniel A. 2022. Generation Z and the future of faith in America. *Survey Center on American Life*. March 24. Available online: https://www.americansurveycenter.org (accessed on 20 November 2022).

Crust, Kevin. 2020. Review: A call to digital arms, "The Social Dilemma" demands change. *Los Angeles Times*. September 9. Available online: https://latimes.com (accessed on 20 November 2022).

Delio, Ilia. 2008. *Christ in Evolution*. Maryknoll: Orbis.

Greenfield, Susan. 2015. *Mind Change: How Digital Technologies Are Leaving Their Mark on Our Brains*. New York: Random House.

Harari, Yuval Noah. 2017. *Homo Deus: A Brief History of Tomorrow*. London: HarperCollins.

Harris, Tristan. 2021. Big Tech's attention economy can be reformed. Here's how. *MIT Technology Review*. January 10. Available online: https://www.technologyreview.com (accessed on 20 November 2022).

Hogue, David. 2020. Review of the book: Pastoral and spiritual care in a digital age: The future is now, by Kirk A. Bingaman. *Journal of Pastoral Theology* 30: 150–53. [CrossRef]

Kaku, Michio. 2014. *The Future of the Mind: The Scientific Quest to Understand, Enhance, and Empower the Mind*. New York: Doubleday.

Kapoor, Arjun Vir. 2019. The simulated universe hypothesis. *The Economics Review*. April 23. Available online: https://theeconreview.com (accessed on 20 November 2022).

Konrath, Sara H., Edward H. O'Brien, and Courtney Hsing. 2011. Changes in dispositional empathy in American college students over time: A meta-analysis. *Personality and Social Psychology Review* 15: 180–98. [CrossRef] [PubMed]

McClure, Paul K. 2017. Tinkering with technology and religion in the digital age: The effects of Internet use on religious belief, behavior, and belonging. *Journal for the Scientific Study of Religion* 56: 481–97. [CrossRef]

Orlowski, Jeff. 2020. *The Social Dilemma*. [Film]. London: Exposure Labs.

Pandey, Erica. 2017. Sean Parker: Facebook was designed to exploit human "vulnerability". *Axios*. November 9. Available online: https://axios.com (accessed on 20 November 2022).

Peters, Ted. 2007. Are we playing God with nanoenhancement? In *Nanoethics: The Ethical and Social Implications of Nanotechnology*. Edited by Fritz Allhoff, Patrick Lin, James Moor and John Weckert. Hoboken: Wiley-Interscience, pp. 173–83.

Rogers, Richard. 2015. *Digital Methods*. Cambridge: MIT Press.

Rončaková, Terézia. 2021. *Religious Messages in the Media: Mission Impossible?* Cambridge: Cambridge Scholars Publishing.

Schweitzer, Friedrich. 2004. *The Postmodern Life Cycle: Challenges for Church and Theology*. St. Louis: Chalice.

Shanahan, Murray. 2015. *The Technological Singularity*. Cambridge: MIT Press.

Small, Gary, and Gigi Vorgan. 2009. *iBrain: Surviving the Technological Alteration of the Modern Mind*. London: Collins.

Steers, Mai-Ly, Robert E. Wickham, and Linda K. Acitelli. 2014. Seeing everyone's highlight reels: How Facebook usage is linked to depressive symptoms. *Journal of Social and Clinical Psychology* 33: 701–31. [CrossRef]

Sutinen, Erkki, and Anthony-Paul Cooper. 2021. *Digital Theology: A Computer Science Perspective*. Bingley: Emerald Publishing.

Tegmark, Max. 2018. *Life 3.0: Being Human in the Age of Artificial Intelligence*. New York: Penguin Random House.

Tillich, Paul. 1973. *Systematic Theology*. Chicago: University of Chicago Press, vol. 1.

Turkle, Sherry. 1997. *Life on the Screen: Identity in the Age of the Internet*. New York: Touchstone.

Van Eyghen, Hans. 2021. Biases for evil and moral perfection. *Religions* 12: 521. [CrossRef]

Weizenbaum, Joseph. 1976. *Computer Power and Human Reason: From Judgment to Calculation*. New York: W.H. Freeman.

Wildman, Wesley J., and Kate J. Stockly. 2021. *Spirit Tech: The Brave New World of Consciousness Hacking and Enlightenment Engineering*. New York: St. Martin's Press.

Wilkinson, David. 2021. Foreword. In *Digital Theology: A Computer Science Perspective*. Written by Erkki Sutinen and Anthony-Paul Cooper. Bingley: Emerald Publishing, pp. xv–xvi.

Zaki, Jamil. 2019. *The War for Kindness: Building Empathy in a Fractured World*. New York: Crown.
Zuboff, Soshana. 2020. *The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power*. New York: PublicAffairs.

religions

MDPI

Article

The Flowing of the Sacred Space: How Reciprocal Exchanges with Deities Are Affected by Urbanization

Meng Cao

School of Humanities and Foreign Languages, Qingdao University of Technology, Qingdao 266000, China; caomeng0623@163.com

Abstract: Although there is a consensus on religious revival in China, it must be noted that popular religion and institutional religions such as Buddhism and Daoism adopt different strategies to survive the state's regulations. Many temples that used to facilitate the worship of local deities have to establish some form of intangible cultural heritage or emphasize the deity's history and folklore to de-religionize. During this process, a temple may earn its lawful place to survive, but risks its communality in the village. Based on studies of rural and urban temples in Henan and Shandong provinces, in this paper, I attempt to understand people's religiosity and how they conduct the human–deity exchange under social transformation. Popular religion is characterized by the pursuit of efficacy and its embeddedness in rural life. The traditional binary exchange with deities could be used to maintain a relationship with deities as well as offer urgent solutions, while three-party chains of exchange not only constitute a religious gift economy but also offer a religious agent to seek answers. I argue that temples are marginalized and excluded from village life, so people need to find new means by which to continue their religious practices beyond what the state sponsors, and this has led to the flowing of sacred places.

Keywords: reciprocity; efficacy; exchange; religious regulation

1. Introduction

A few years ago, I encountered an elderly woman at Mount Tai's temple festival. Since Mount Tai is one of the Five Mountains in China, she curiously asked whether I knew of another one, Mount Heng, or Zhongyue (中岳), as locals call it. I nodded, "Yes, it is located near the capital of Henan province". "No, that is not what I am talking about," she corrected me, "you are too young to know. Even my daughter did not (know)". Then, she told me the following story: "It was during the Cultural Revolution about half a century ago that so many temples were destroyed. My daughter and I took a bus home while passing through a village. I pointed my daughter toward where there was once a Zhongyue temple. There was no such thing as a deity, my daughter replied. Days later, she started to experience severe stomachache. I knew immediately it must be the deity. Later that night, I closed the door, praying in the middle of the yard. I couldn't burn incense or (yellow) paper because it was not allowed. I begged the deity to forgive my daughter's ignorance. The next day, she told me she was ok".

Her story revealed a rural common perception that a deity is strongly linked with a specific location where a statue or a building has been destroyed, and also, it was and still is the mother who shoulders the spiritual responsibility on behalf of the whole family. The location is viewed as sacred because it was chosen. Therefore, when burning incense was resumed in the early 1980s, people chose to burn incense and yellow paper in the ruins of their temples. This shows that the sanctity of a place is relatively stable and people resort to mediums such as incense to reach the deity. In addition, even though the elderly woman could not burn incense at the time of her story, she still managed to communicate with the deity through the dual human–deity exchange system. However, decades later, when I

Citation: Cao, Meng. 2023. The Flowing of the Sacred Space: How Reciprocal Exchanges with Deities Are Affected by Urbanization. *Religions* 14: 187. https://doi.org/10.3390/rel14020187

Academic Editor: Z. George Hong

Received: 24 November 2022
Revised: 26 January 2023
Accepted: 27 January 2023
Published: 31 January 2023

visited a black dragon temple in the coastal city of Qingdao, it was hard not to notice the weird-looking incense burner: its four holes on each side were blocked with a stainless steaming rack. A sign had been set up near it, saying that, "This is a place of popular religion. No donation box is allowed. No religious activity is allowed". On one pillar of the main hall, a notice stated, "To answer to the government's call, burning incense and paper is prohibited. Offenders will be fined 5000 RMB". If popular religion is still religion, why is burning incense not allowed? This makes one wonder what is the true nature of religious revival under the state's religious rules, and what makes a place sacred or not against such secular regulations. In this paper, I seek to understand people's religiosity and their perception of being urbanized. I undertook an ethnographic study of a rural county in Henan province and a coastal city in Shandong province. These two places have both experienced a rapid trend of urbanization under the state's agenda for civilization and modernity.

2. The Revival of Popular Religion

The religious resurgence in China, apparent since the 1980s, has been reported as "most dramatic and unexpected (by both officials and scholars)" (Goossaert and Palmer 2011, p. 234) and as one of the "the most 'unexpected' phenomena since the beginning of the Reform and Open-up policy" (Liang 2015). The religious resurgence is evidenced by the resumption of religious activities, the reconstructed temples and the flourishing temple business. In 2003, one-fifth of mainland Chinese were found to identify with or be affiliated with some sort of religious faith (Lai 2003), accompanied by a rise in the number of believers and the consumption of incense and ritual commodities. Liang (2015) proposed three explanatory models for religious revival in China: the invention of tradition, the state–society relationship and religious market theory and pointed out the limitations of each model. Chau warned that the invention of tradition "might lead one to assume that what existed before Maoist suppressions was a tradition that was more coherent and authentic" (Chau 2006, p. 6). Therefore, can we treat the resurgence as the following of tradition or, as Siu (1990) stated, is it a reinvention of tradition through symbols "recycled and diffused in everyday social living to create new meanings" (Siu 1990)?

The state–society relationship model often reduces complicated social interactions to a simple binary relation (Liang 2015, p. 165). It focuses on the economic stimulus or the elite effort but overlooks the individual believers' initiatives. The fundamental defect of the religious market theory is that it is a theoretical projection from the perspective of Christianity (Ibid, p. 166). Take Yang's triple-market model, for example. Yang argued that the gray market (religions with an ambiguous legal/illegal status) arose from heavy regulations so "more people practiced alternative forms of gray-market, such as popular religion and shamanism" (Yang 2006, p. 99). However, studies of popular religion such as the Dragon Tablet in Hebei province (Gao 2006; Yue 2014; Yue and Cai 2017), the Black Dragon in Shaanbei (Chau 2006) or the Bai ethnic group in Yunnan province (Cao 2014) all show that people turn to popular religion because this is the practice they find efficacious, not because they have no access to other religions.

The religious market theory does not apply to Chinese society because there is never a religious market where people can freely purchase or choose certain services. The story I mentioned earlier shows that most people do not care if what they perform is "religion" as the state recognizes it, because what they perform is a set of practices that has been proved to be efficacious by their ancestors and thus is passed on as tradition. Therefore, people do not choose from the market, they directly turn to the people, such as the *fengshui* (风水) master, the incense observer, the spirit medium or the (Daoist) priest, for certain rituals. It must be made clear that up to today, the concepts of Buddhism and Daoism are still imposed on people because they know that under religious regulations, and in the aftermath of previous political propaganda, Buddhism and Daoism are legal religions. However, in reality, what they practice is still popular religious practice. The Chinese religious landscape should best be understood as competitions between different modalities of practic-

ing religion (Chau 2011, p. 548), and the real challenge is how they continue their practices under the state's regulations.

The elderly woman to whom I spoke told me that she began to burn incense the moment it was allowed. However, when I asked whether she also went to a Buddhist temple, or only visited Daoist ones, she replied in confusion, "What is that?" As Chau (2011) put it, the Chinese people have engaged with these modalities of "doing religion" in real practices, whereas no one ever engages with "Buddhism" or "Daoism" because these exist more as conceptual aggregates. That is to say, what people practice is the act of making exchanges with deities through burning incense and paper to acquire instant efficacy. What is revived is not simply a religion, but various forms of religious practices. Thus, the real question is, why are various forms of religious practice and participation flourishing in the face of science and modernity (Kipnis 2001, p. 32)?

The reason why I distinguish popular religion (namely minjian Xinyang, 民间信仰) from religion (zongjiao, 宗教) is that the revival of religion, to an extent, is precisely the revival of institutional religions. The really tricky part is that, except for the social consensus on what the five religions are, there is no clear definition of religion and superstition. As a result, popular religion hovers on the edge of superstition. In addition, even though scholars have reached a consensus on "religious revival", I argue that this might be a contradictory proposition for two reasons. First, the religious revival we talk about today refers to the trend observed after the opening-up policy. That is to say, we compare today's religion with the time when religion was prohibited, at least in official life. However, just as the story of the Zhongyue deity indicates, common people have never ceased to believe in the efficacy of the deity. Second, although temples have been reconstructed and religious activities have been resumed, the diversity and quantity are on the decline. For example, there were over 100 temples in Lu County in 1743, including for the God of Longevity, the Three Immortals and the Mount Tai temple, and for deities with universal functions, such as the Stone Buddha temple, Auspicious Clouds temple, Manjushree Convent, Avalokitesvara temple, Jade Emperor temple and so on (County Gazetteer 1743, pp. 82–85). However, in 2005, there were only 18 Buddhist temples and 17 Daoist temples, and at least 4 Daoist temples are Zushi temples (祖师庙). To meet the state's religious regulations, temples have to affiliate either with Buddhism or Daoism to survive. Those temples without a religious affiliation are either treated as sites of popular religion or places of superstition.

The religious revival is thus marked by the ambiguity of religion and popular religion. To burn incense in a temple is allowed because it is a religious act, but to do the same at a crossroad on the street is superstitious. Similarly, divination is only a religious act in the room of a temple. To do so in someone's home could be regarded as feudalistic superstition. It is the state and its religious regulations that draw the line between religion and superstition, between sacred and uncivil. In other words, the state and its propaganda reshape people's conception of space, especially spatial transformation.

I argue that the trend of urbanization and the construction of a "new socialist countryside" has narrowed the space of popular religion. Consequently, people's perception of the sacred place, which is usually associated with a temple, is interrupted. I propose to follow the path of the gift market theory (Ji 2009; Liang 2015; Palmer 2011) and the "doing religion" model (Chau 2006, 2011) to analyze people's religious practices. Unlike the incentives of the local government or official religions to make money out of the resumption of religious activities or redecorated temples, what people are seeking through religious acts is to make exchanges with a deity, regardless of his or her sects. The relational modality is centered on "social comings and goings" (laiwang 來往) and social relations (guanxi 關係), or connectedness (Chau 2011, p. 552).It is argued that social relations can be affected by the relation between the human and the deity (Li and Yang 2019; Zhao 2018).To win the deity's favor, it is necessary to maintain a good and reciprocal relationship with the deity. This explains why people follow the Buddhist convention of burning incense in a temple twice a month (namely the first and the fifth day of every lunar month), although they do not

acknowledge this convention as Buddhist. This is the same logic as following a tradition without tracing its origin.

Since "gift exchange is an elementary form of religious life" (Ji 2009), people make exchanges with deities because they recognize the importance of their gift in ensuring a return gift from the deity. Liang, however, emphasized that morality is central to social solidarity in the gift model. He suggested that reciprocity and the expectation of reciprocity underpin the moral foundation of society (Liang 2015). This raises new questions around the human–deity relationship: are deities obliged to respond to people's wishes because of the gift, or do they grant blessings to reward moral behavior? In addition, how are these understandings impacting people's return to religious practices?

Palmer expands on the human–deity exchange: in a religious gift economy, the god—or a spiritual reality or principle such as karma—is a third partner in the exchange that also involves the believer and a religious specialist (Palmer 2011). This brings a new dimension to religious revival because, by bringing gifts, believers are building on their human relationship with monks or incense interpreters. This highlights the role of religious specialists in the revival. Do they simply convey deities' messages through burning incense, or do they lure believers to accept more orthodox approaches under their control through appeals to efficacy? Urbanization has a greater influence on popular religion because it has caused migration and thus resulted in "an irreconcilable contradiction between the mobility of people and the stable sacred location" (Liu 2018, p. 205). Some traditional sacred places such as temples or shines have either vanished or been secularized.

However, as a structure of social relations, popular religion is rooted in certain social spaces to orient people's ethnic codes and relations (Li 2012). As Chau (2006, p. 7) theorized, popular religion has a temple-based form but without elaborate rituals, theological maneuvers or a priesthood. This means that under the trend of institutionalization, temples offer people a channel between the sacred and the secular, but whether or how the sacred is embodied by a physical space may undergo new changes.

This paper involves a comparative study of a Buddhist temple in rural Henan province and a (Daoist) temple located in a coastal city in Shandong province because they both went through the process of the same trend of urbanization and religious institutionalization, with people responding in different ways. With temples being torn down or reconstructed, people have to look for a sacred place to make their exchanges. In addition, both Shandong and Henan are deeply affected by the Confucian culture and share similarities in many religious practices. I conducted 10 months of fieldwork in rural Henan in 2017 and follow-up research in 2021 and 2022, and have studied popular religion in Qingdao since 2021.

My focus in rural Henan is centered on temple festivals and the revival strategies of the Huayan temple. In 2017, I attended at least 20 temple festivals from March to September to observe people's practices and talk with villagers. I spent the rest of the time in the Huayan temple to explore the dynamics between the key believers and the monk who runs the temple. Later, in 2021 and 2022, I returned to the temple a few times to see how its revival strategy was performing but, due to COVID-19 policies, the temple barely held any large-scale rituals or temple festivals. In Qingdao, I conducted in-depth interviews with 12 inheritors of intangible cultural heritage and paid close attention to how temples, temple festivals and relevant legends are transformed into intangible cultural heritages. My findings accord with previous studies that middle-aged and elder women are dominant in popular religion. For women, religious practices are the extension of their household obligations. And women's religious practices always rely on the family (Li and Zhong 2016). Though most religious participants are women, it is intriguing that the people who run the temple or the festival are often male.

Classic studies of Chinese religion tend either to focus on the clans in southeast China or typical cities such as Wenzhou. In contrast, Henan and Shandong, or the representatives of northern China, seem to be less distinct in terms of religious practices. Popular religion in northern China is almost invisible against urbanization and social transformation. The

studies of Wenzhou have signified the roles of ancestral clans and social wealth, resulting in "ritual expenditure" (Yang 2000) and the industrial use of ancestral temples (Chen 2016), and the role of religious networks as Wenzhou migrants overlap their faith in Christianity with business communities (Cao 2016). Compared with that, there is no significant clan or ancestor worship—except the worship of Confucius—in Henan or Shandong, nor religious organizations to borrow the state's discourses to resume local tradition. Even the temples and religious rituals are quite conventional: there is no grand ritual such as the worship of Matsu in Fujian province or the dramatic performance of a deity's procession. Thus, I have reviewed these individualized and private religious practices, as well as how people practice religion in their daily lives while facing social transformation and coping with the change in being labeled as an urban people and living life in a corresponding way.

3. The Rural Path to Civilization

It is argued that Christianity is thriving in northern China, such as in Henan province, due to the absence of popular religion, which was destroyed during previous political movements, while in southern China, because ancestor worship is intact, popular religion is still actively involved in people's daily lives (Yang 2014). It is the case in Lu County that popular religion suffered tremendously before the 1980s, with the destruction of temples and a decline in ritual specialist numbers, which meant that people had no temples or religious specialists to turn to when they needed help. Christians took this opportunity to fill the gap in people's lives (Zhang 2014) created by the disappearance of popular religion and "what peasants experienced as the deficiency of traditional beliefs" (Wu and Zhang 2010). This means that after the 1980s, the rural religious ecology was reshaped, as religious regulations have taken a heavy toll on popular religion.

As argued earlier, popular religion comprises a set of practices that are different from the systematic teachings or rigorous liturgies of institutional religions such as Buddhism or Protestantism. Most deities in temples do not have clear religious identities and Buddhism and Daoism are the results of temple registration. To be legally registered, temple monks or committees apply for a license and there is cooperation between temples and local authorities for economic benefit (Chau 2006; Fan 2010; Gao 2006). In consequence, some temples that used to worship local deities have had to resort to other means. One village in Hebei province has made use of Chinese people's faith in dragons and transformed their ancestral hall into a museum, demonstrating the art of double-naming (Gao 2006). In other cases, temples are preserved when they qualify as a cultural relic (Fan 2010) or the myth of a certain deity is viewed as intangible cultural heritage (Gao 2021; Sato 2018).

However, what does that mean for the people? A registered temple is no different from an unregistered one in terms of individual needs. People in Lu County mainly pay a visit to the temple for two purposes: a regular visit (twice a month) to show piety and a temporary visit in emergencies. A monk or a temple keeper fulfil people's needs without their registration being a necessity; it is their ability that counts, not their academic background or their official status. Meanwhile, for the temple keeper, a license or religious registration is vital to the temple's long-term survival, for it means that the temple no longer faces the threat of being labeled as superstitious and illegal. It is the rural tradition that affects people's religious choices, not the state's approval. In the worship of Emperor Yan in Shanxi province, although the local authority has allowed official worship in the Mausoleum for the sake of publicity and tourism, local people prefer to attend the rural temple festival in the relics for religious benefits (Zhao and Li 2014). Similarly, to promote local tourism, sponsored by a company, a grand Buddha statue with a total height of 108 meters was constructed about 100 km away from the county seat and, allegedly, the cost was 0.28 billion RMB. However, with the ticket fee amounting to 140 RMB since its opening, people in Lu County rarely visit this magnificent Buddhist icon. The annual income was merely around 5 million RMB in 2005 (County Gazetteer 2014, p. 460). This shows that people prefer to choose the temple they regard as efficacious. Still, although no one would question the role of the temple in people's lives, what I found was that it is hard to define religion in

people's lives. Deities, *fengshui* or temples are like the elephant in the room. People avoid directly mentioning anything slightly related to the supernatural sphere or are reluctant to admit to resorting to spiritual forces.

This is the aftermath of decades of religious regulation. My interviewees frequently talked about burning incense as "feudalist superstition" and "not allowed in the past". Sato (2018) discovered the same tendency in the lower Yangtze delta, when people treat their practice as superstitious. Apart from being rejected by the main narratives, temples were gradually moved out of the center of the village, as well as people's lives, during the state's pursuit of civilization. There was a separation of time and space concerning religion and village life. When I frequently attended sermons in the Huayan temple, some elderly women asked about me, "Why is she here? What is her problem?" It is the perception that it is women's (especially elderly women's) role to shoulder spiritual responsibilities on behalf of the family. Thus, a young person such as me would not, or should not, appear in the temple unless she is in desperate need of help; for example, to cure some disease or ward off evil[1]. In other words, practicality triumphs. Following that logic, there is no need to understand Buddhism and Daoism. Local people seldom use these terms. They choose the term "burning incense" to refer to the practice. "Burning incense" is understood to encompass related religious activities and the people who conduct such practices. Apart from Christians, almost every household in rural areas burns incense in the temple, at home shrines or in the graveyard. Although the official data on Buddhists and Daoists indicate they only comprise a small proportion of the population, my fieldwork data suggest that most rural people are engaging with popular religion in one way or another.

In Lu County's dialect, the frequently used word *miao* (庙) refers to any type of temple. However, the religious registration starts to create differentiation: *miao* is Daoist while *si* (寺) is Buddhist. When I asked a woman who claimed she started burning incense after she became married twenty years previously, after hesitation, she replied, "*miao* and *si* are different. Monks in *si* are bald, but in *miao* they wear their hair in a bun". Only those devout lay Buddhists who have already converted to Buddhism stress the difference between *miao* and *si* to highlight the superiority of Buddhism. For the majority, there is no need to understand the difference because both *miao* and *si* are sacred places at which to conduct the act of burning incense.

I singled out the Huayan temple because it illustrates a successful case of transformation into a Buddhist temple relying on people's practical orientation. It exploited some believers' evangelical fever and introduced new teachings to offer "new religious experiences as extravaganza and marketable goods" (Qian and Kong 2017, p. 15). According to the elderly in Shang village, the Huayan temple was once the village temple, so every household would celebrate the temple festival. It became an elementary school during the 1970s and 1980s so the whole structure was preserved. In the 1990s, a "cuckoo" woman—she was never married—started to run the temple. She did not know how to cure people or have professional Buddhist training, so she simply kept the temple tidy. Although she had the ambition to rebuild the temple to its historical glory, people said, "She is a woman. How can she appear in public and raise donations?[2]" The 83-year-old woman who sells incense explained to me that it was not until master Feng took over the temple a few years ago that the temple started to flourish.

As a registered monk, he likes to publicize his academic training and healing powers. He soon raised money to build several main halls and new statues for Buddha and Bodhisatva by traveling around and mingling with entrepreneurs. He invited many famous monks and nuns to host public sermons and elaborate rituals for the public good. However, even he cannot stand against the trend of urbanization. Firstly, due to administrative divisions, the Shang village was divided up and some villagers moved as the village sold many farmlands for industrial use. Secondly, with the main road coming into service behind what is left of the village, the Huayan temple no longer occupied the center of the village, nor was it the center of village life. Sitting at the back corner near a dumpsite, the grand buildings in bright yellow stand in sharp contrast to the bleak farmland.

Without the village's financial support, the Huayan temple has to shoulder the responsibility to host the annual temple festival to boost its reputation with sophisticated rituals and fancy operas[3]. A line is thus drawn that separates the temple's sacrality from people's mundane life, to separate the temple's tranquility from the rituals' chaos. Even though the temple festival is still an important occasion on which to celebrate the main deity Buddha's birthday, it is not a communal ritual aiming to consolidate the Shang village's solidarity, but instead, it is intended to enhance the tie between the people who expect to be blessed and the deity. When Feuchtwang described the deity-tour in Taipei in the 1960s, he described the deity as the "territorial guardian god" who would "protect the place marked out by the procession of the god-image against threats", and, most important of all, the tour was intended "to celebrate the *ling* (efficacy) of protection against the ling of danger to the settlement from the invasion of its boundaries" (Feuchtwang 2001, p. 24). A similar sentiment is associated with the worship of the black dragon in Shaanbei, when each household shares a piece of sacrificial meat to confirm their place in the village (Chau 2006).

In the case of the Huayan temple, once it was separated from the village's communal life, the temple had to turn to serving people's private needs as a survival strategy. The sacrificial circle (*jisi quan* 祭祀圈), where people from the same region shoulder the obligation of communal worship, becomes invisible and less significant as temples are no longer central to a certain region. What is celebrated today in the temple festival is not the village as a community, but the religious community centered on the communal belief of the deity. What I found in today's Huayan temple is close to Yue's findings, i.e., that the Goddess does not illuminate what is near (Yue 2016, p. 254). A large proportion of Shang villagers have converted to Protestantism and master Feng's key followers come from other parts of the county. The religious ecology is disturbed; the sacred boundary that was marked by the communal deity is now torn apart when some people choose a different religion.

Now, as master of an orthodox Buddhist temple, master Feng has the authority to circle the sacred domain. He never ceases to exploit that. He reminds people that studying at one's home without Buddha's aid is not as fruitful as in the temple. In addition, studying in a group involves legal issues and a temple is a sacred place so no evil can enter, relieving people's burdens. He exploits the popular religion's efficacy and practical orientation to offer people a Buddhist disguised practice. With him constantly promoting the power of following disciplines and learning scriptures, he adopts the configuration of liturgical and scriptural modalities pursuing dharma-based religiosity (Chau 2011). He often makes a long speech before performing the ritual. However, the majority of the temple-goers stick to the configuration of the immediate-practical modality and the relational modality, for that is the continuation of popular religion.

Because the location is rural, certain "superstitious" practices linger, with many people attached to them. The state's propaganda of a "civil" tomb-sweeping never appears in Lu County. On certain days, people still burn incense in the graveyard, and, during the spring festival, they burn incense in the yard. Thus, temples, houses and tombs constitute a rather stable acknowledgement of the sacred, and each place maintains a unique exchange: with ancestors, with deities and with spirits. The exchange is revealed as binary because no medium is required. When people make a wish in front of the deity, they know it is the deity that brings blessings. Though there are no written rules, local people follow certain customs regarding making wishes to a deity. Most importantly, a wish or an exchange with the deity should be reciprocal. It means that if people make a wish to the deity, they must keep their promises and return the favor in certain ways. The most common approach in Lu County is to return to the temple for three years once the wish is granted. Or there will be undesired consequences. The exchange should also follow the principle of equal value so no one should take advantage of the deity. I argue that the binary exchange relies heavily on personal experience to sense whether the deity is efficacious or the wish is granted or not.

However, in a religious gift economy, the god—or a spiritual reality or principle such as karma—is a third partner in the exchange, which also involves the believer and a reli-

gious specialist (Palmer 2011). This brings a new dimension to religious revival because, by bringing gifts, believers are building on their human relationship with monks or incense interpreters as well. It is the deity or karma that affects one's fate, but it is the human agent who interprets the deity's message. This expands people's understanding of the human–deity relationships as the agent can interpret them in his own way. People seek advice from master Feng or other spirit mediums only when the usual burning incense routine does not work. For example, one woman in her fifties often carries her sick son to attend sermons. It was advised by the master that someone in her family has some karmic debt, resulting in her son's suffering. As well as burning incense in the temple and attending sermons to accumulate merits, she made a vow to chant the Bodhisattva Kṣitigarbha Sutra and made sacrificial meat twice a month for three years to redeem the sins. This was her effort to make an exchange with the deity for her son's health. Her practice is "the material embodiment of the gifting relation" (Ibid, p. 579), and her devotedness has secured her alliance within the temple's members. After each sermon or ritual, when all the attendees perform the Dedication of Merits (*gongde huixiang* 功德回向), some members often dedicate the merit and virtue of their cultivation to her and her son.

The influence of urbanization on the rural religious landscape goes both ways. On the one hand, temples give way to rural development, so temples such as the Mount Tai or Monkey King temples have been relocated in the corner of the village and more temples such as Zhongyue were never given the chance to be restored. The religious diversity in terms of deities and legends is on the decline. On the other hand, migrant workers or their family members bring back new religious practices. The teaching that master Feng adapted was introduced by some female lay Buddhists who learned it in Zhengzhou, the capital of Henan province. The experience of living or working in a city helps people in "acquiring new goals and means for self-fulfillment" (Feuchtwang 2012, p. 124). What I found is a competition between modalities; as Chau (2011) suggested, some people stick to the traditional way of acquiring efficacy through the binary exchange of burning incense and paper, while others adopt the personal-cultivational modality for the meaning of life. Master Feng deployed all the modalities to consolidate his ruling over the temple and religious authority. However, most of the time, the binary exchange stood out as people rushed into the temple to burn incense and rushed out to go back to their daily lives, leaving the devoted ones attending the rituals. Efficacy-based religiosity fits rural people's religious orientation in terms of instant results at minimum cost. Thus, even someone as strict as master Feng has had to make compromises. He was strongly against people burning incense in the temple because this is not in accord with the orthodoxy of Buddhist disciplines, so he refused to build an incense burner in the yard. Years later, the back wall was blackened by smoke. Finally, he admitted in one sermon, "people are still not on the path of true Buddhism. They are still superstitious. But to make the masses happy, I will build one." This illustrates the victory of popular religion over orthodox Buddhism and the immediate/relational modality over the liturgical/scriptural modality.

4. The Urban Response to Religious Regulation

As a "feudalist superstition" such as burning incense, worshipping deities is often seen as the obstacle to the construction of a new socialist countryside (Liu 2021). This is the case in the rural areas of Qingdao, a coastal city in Shandong province. There are heavy regulations in respect of the public area as well as religious sites. For instance, according to *Regulations on Prohibiting Burning or Scattering Sacrificial Offerings in Qindao* (2020), burning paper on the street could result in a fine of not less than 200 RMB, or more than 1000 RMB. Because the state is the producer and vindicator of knowledge and social norms, and also the source of rationality and legitimacy (Gao 2001, p. 45), unregistered temples in Qingdao's rural areas face the same challenge of acquiring legitimacy. Popular religion has no foothold in urban life because it does not fit into the modernized lifestyle that the urban communities and commodity housing support. Even Christians are aware of their political advantage and claim that their act of believing in Jesus is legal and protected, while

believers of popular religion are superstitious (Li 2008). In Qingdao, temples are either affiliated to Buddhism or Daoism, or reformed as an element of the intangible cultural heritage. For instance, the black dragon temple was secured after the myth of the black dragon was listed as an intangible cultural heritage. Popular religion seems to disappear in people's lives and temples vanish in the concrete forest of the city.

Li (2008) noted that there has been a shift from feudalist superstition to cultural heritage in folk culture and Gao (2021) argued that that shift aims to solve the issue of legitimacy. After all, in a modern society, every public act must possess full legitimacy (Gao 2000). This is the strategy that the Lady Chen (*chengu* 陈姑) temple applied. The Lady Chen temple is located on a peninsula of Qingdao. Allegedly, the Lady Chen temple was built in the late Song dynasty when the Gu family made a living by fishing, and it is favored by the five villages scattered around the peninsula. The statues were destroyed in 1965, and the then-priest made a living by farming. The temple survived because it was used as a school, just like the Huayan temple. This indicates that religious properties only survive when they offer some atheist functions. In 2001, the Lady Chen temple was listed for a key cultural relics protection unit at the district level, and, in 2018, the Legend of Lady Chen was ranked as an intangible cultural heritage at the city level. The temple has thus secured its rightful place.

However, this temple is not registered in the religious bureau so it is not a legally recognized religious site. Another hit took place in 2017, when the nearby villages were relocated due to urban construction and administrative planning. The Lady Chen temple was left alone with an empty village. The temple now sits quietly near the dock and an unfinished landscape lane. In 2019, a *fengshui* master suggested bringing the fox spirit from the nearby mountain to this temple since there are constructions all over the hills. To boost the economy, there are newly built hotels, cafés and art galleries. There is no room left even for the temple's deity under the urbanization agenda. The traditional segregation of the sacred and the secular is now under new scrutiny. The link between the deity and the people was forced to take new forms, especially after the village deity was cutting the ties with her people. Since moving, the temple has lost its authority over the community or a certain region, and the Lady Chen temple has stopped hosting temple festivals because of insufficient funding and audiences. The temple keeper, the eighty-year-old grandpa Gu, can only describe the common scene of temple festivals held in the past: crowded villagers, loud operas and bustling stalls. This was nostalgia for rural life no longer in existence. A beautiful and well-maintained temple and a "red and fiery" (*honghuo*) temple festival reflect well the strength and state of blessedness of the community (Chau 2006, p. 21).

As local gentry who used to be the Gu village's party secretary, his interest in restoring the temple is more ancestrally and culturally oriented. He still considered this temple as the Gu family's temple and he knew all the stories associated with their family's history. However, he did not have the power to perform divination or cure diseases. The Lady Chen temple is only a place for individuals to perform their binary exchange since there is no agent to intervene, nor are public rituals allowed. During the interview, grandpa Gu carefully showed me a delicate divination book handwritten in 1943. He envisaged that in the future, there would be divination lots and a book for people to implement self-service. After all, popular religion is essentially a religion of efficacious response (Ibid, p. 64). People expect to receive responsiveness from the deity, whether it is in the shape of the burning incense or the words they write. This is a daily practice of the deity–human exchange by donating money or bringing gifts, once the incense is lit, the deity should offer believers some guidance. Practices such as this contribute to the deity's efficacy which enables the elite or medium spirit to carry forward their ambitions. Through the patronage of cults such as that of Guandi, the elite were able to express their identification with the values of the state and the gentry (Duara 1988a, p. 148). For the same reason, grandpa Gu compiled a pamphlet to record Lady Chen's good deeds and all the names of local sponsors for the temple's reconstruction. He held it as the gentry's cultural obligation.

Although the state's atheist agenda is unwavering, local governments, however, react differently. For example, Hunan province has issued the *Regulations on Popular Religion's Sites* [2022 No. 51]. In Article 1, popular religion's sites are defined as temples for people to conduct popular religious activities, but excluding the Confucian temple (*wenmiao*文庙) and ancestral halls. This continues the imperial state's practice of labeling temples as illicit/improper locations for sacrifices or officially registered for sacrifices. The problem is, it is never made clear why a popular religion's site is different from a Confucian temple. People in Shandong worship Confucius as any other deity. This ambiguity of religion or its nature has been accompanied by the national pursuit of science and modernity since the 1900s. Katz (2014) discussed the same dilemma in the policies of the Government of the Republic China when the Standards to Determine Temples to Be Destroyed or Maintained was enacted in 1927. Temples dedicated to former sages and deities of the five state-recognized religions were to be preserved, but temples encompassing local cults were to be eradicated. Hansen reviewed the Song dynasty's religious regulations and he suggested that "one could view the register of sacrifices as a means of co-optation or manipulation, but the sources do not encourage this reading (Hansen 1990, p. 86)". In Article 6, it is stated that in principle there should be no newly built or rebuilt popular religion sites. This is different from the intense competition between religious groups over the restricted supply of land for religious purposes (Woods 2018), but there are various strategies for those existing religious sites to gain legitimacy. In Article 16, it is stated that no organization or individual should take advantage of popular religion to conduct feudalist superstitious activities such as warding off diseases and ghosts, or performing sorcerer's dances and criminal activities such as swindling and propagating cults.

Despite the fact that the Shandong province has not issued such regulations, the sign posted on the black dragon temple to remind people not to burn incense indicates similar strictness. Gods are popularly believed to occupy the clouds and to register and respond to the scented smoke as it reaches them there (Byrne 2019, pp. 8–9). However, after the reform of cultural heritage or institutionalization, the temples took a cultural or orthodox turn to fit the state's standards with confined sites, activities and worship. The register of deities was intended "to harness the power of the gods for the purpose of the state" (Hansen 1990, p. 28) and that is why the Confucian temple is not regarded as a religious or popular religion site, for it carries the state's idea of civilization. Feuchtwang (2012) pointed out that the Party-state adopts the rule of sage or sage leadership to promote "an ideal of morally trustworthy leaders" as well the "universal principles (the *dao*) of responsiveness (*ren*)" (Ibid, p. 121).

The use of religion to control the common people may have been legitimatized by the state cult, but in manipulating the masses, the managers of the society necessarily looked to religious arenas outside the strict confines of official religion (Feuchtwang 1977, p. 581). Now, even those alternatives to religion are affected by the trend of urbanization. Take the spirit medium, for example. It is noted that some *fengshui* masters or fortune tellers who once resided in the temple now disguise themselves with professional skills or membership in an academy studying traditional culture, and the identities of "experts" of one sort or another are now frequently used to validate authority (Li 2015). Liu (2018) found similar traits in Shanghai, where those agents could not perform systematic rituals in the urban residential area so they had to modernize their management and working style and equip themselves with cultural knowledge. Under the trend of urbanization, the stability of the location becomes highly unpredictable since religious sites are not included as part of the civilized urban lifestyle. In consequence, people have to make meanings out of spaces and open new channels to communicate with the spiritual realm.

Sato (2018) worried that there might be a huge gap between the folklore recognized by the authority and experts, and the folklore envisaged by the people. He argued that temple festivals and other religious rituals offer rural elder women a chance to form their social network to not only heal but make a living (Sato 2018, p. 49). Underneath the cultural heritage, it is imperative to find the people's voice in the main narratives. Only then

can we observe the resilience of rural religious practices and how the binary exchange between humans and deities supports people's efficacy-based religiosity. The Longquan temple festival and the Mount Guolao temple festival are listed as part of the intangible cultural heritage at the district level in Qingdao, but they take different paths. The Longquan temple festival originated from the worship of Guandi, the god of loyalty, in 1828, but the temple was destroyed in 1966 and never rebuilt. Without the worship of a deity, the local government initiated the revival of the temple festival as a combination of commodities fairs and folklore exhibitions. This was a success for years until the village was urbanized and no one has taken the responsibility to host the temple festival since 2013. With the untimely death of a few crucial religious leaders or specialists, or the lost memory of communal rituals, some villages never re-establish their cults (Goossaert and Palmer 2011). Conversely, although the temple in Mount Guolao is long gone, people have found a sacred place with a stone pillar that was regarded as the location where the deity performed his miracles. Every year on the night of the fourteenth day of the first lunar month, people rush there to burn incense, despite the fact that the next day is the festival. It is astonishing to see tens of thousands of people crowed on a small hill up to 39 meters. The Mount Guolao temple festival is still regarded as an auspicious occasion and is favored especially by entrepreneurs praying for fortune.

This is how people "do religion", in that they focus on the practices or certain perceptions of the sacred. It is a hybrid of mixed religious traditions. For instance, the Longquan temple festival was dedicated to the main deity Guandi, but according to local legends, the temple festival falls on the eighth day of the fourth lunar month because this was the dragon king's birthday. The temple is a hybrid as well because local people built it in 1828 hoping to stop drought, ward off hail and protect fishermen. Guandi is once again superscribed by the local people to convey their expectations, which creates "a lively arena where rival versions jostle, negotiate, and compete for position (Duara 1988b, p. 780)". By attending temple festivals with a sacred place, people are performing the relational modality because, as Chau (2011) suggested, "the making and maintaining of relations and the production and consumption of sociality" (Chau 2011, p. 552) are the foundations of people's religious practices.

The sanctity of a space is characterized by the construction and transmission of meanings, and the relative stability of the spatial position (Liu 2018). Deities that are treated as efficacious have all completed the process of deification and they utilize symbolic stories to gain legitimacy (Chen 2001). Most importantly, as Liang (2018) revealed in a gift exchange with a local deity, the local villager not only sacrificed his house for the temple to be restored, but he applied with the local morality. Because popular religion is diffused in every aspect of rural life, it is treated "as a religion having its theology, culture, and personnel so intimately diffused into one or more secular social institutions that they become a part of the concept, rituals, and structure of the latter, thus having no significant independent existence" (Yang 1961, p. 295). This is the communal part of human–deity interaction: through the gift exchange with the deity, the deity's efficacy and responsiveness are confirmed, as well as the public good.

Thus, a sacred place could enhance people's faith in the deity and consolidate the tie. That is why master Feng made efforts to host a grand temple festival, for it is an occasion by which "to bring individuals together, to put the masses into motion, and thus induce a state of effervescence—sometimes even delirium—which is not without kinship to the religious state" (Durkheim 1995, pp. 386–87). Each part of a temple festival symbolizes the deities' power and people's gratitude for blessings and protection. The elderly, who have experience of living in the rural environment, especially like attending temple festivals because, for them, the chaos or the bustling scene serve as a reminder of the past and an earlier lifestyle, providing a rare occasion for people to talk freely about their lives, especially in their deity-related stories, and to facilitate the experience of communal effervescence that arises from watching morality-orientated operas. Rather than considering their orthodoxy

or legitimacy, rural people feel more attachment to temples that have already undergone the process of localization (Chen 1999).

However, under the urbanization, temples such as Lady Chen temple face a new dilemma: when the temple no longer hosts communal rituals and only preserves an intangible cultural heritage, does it still function as a religious place? I argue that the binary exchange between human and deity preserves a channel for people to directly communicate with a deity when the religious places either become cultural heritage sites or standardized institutions. The decline of religion is a reflection of the state's secularization goal. When Yang (1945) wrote about Taitou village in 1946, he discussed how all non-Christian families performed ancestor worship, dedication to the stove god in the kitchen or burned incense in the ancestral hall and the earth god temple during the spring festival. However, in today's Taitou, under Qingdao's urbanization process, there is no ancestral hall or earth deity temple in the whole neighborhood. To post an effigy of the stove god is treated as an outdated or backward rural practice that no longer fits the urban lifestyle.

In other words, in Qingdao, there is no buffer between the state's religious regulations and rural religious practices. It is either the institutional temple or the culturalized temple. In contrast, in Shantou city, on the southeast coast of China, religious organizations such as charity halls offer a middle path. Registered as a social organization, the charity hall can function as a charity association for charitable relief, but also a religious site at which to host rituals, funerals and other services. Because the temple belongs to the charity hall, it utilizes partial legitimacy to strive for full development (Gao 2000, p. 104). Spirit mediums or *jitong* (乩童) are stationed in the temple to perform planchette writing (*fuji* 扶乩) to respond to people's private needs, while the chairman of the charity hall, as the abbot of the temple, has the permission and legitimacy to host the annual ritual. Thus, in cities such as Qingdao, another new form of human–deity interaction has been facilitated to cope with urbanization.

5. The Core of the Human–Deity Exchange

It has been argued that studying religious conceptions "will only yield a bewildering diversity" (Chau 2006, p. 76), but I argue that the core of these conceptions is efficacy. Efficacy (*ling* 灵) signifies deities' responsiveness and is always regarded as the center of popular religion (Feuchtwang 2001; Chau 2006; Katz 2014). All the deities, including Buddha and Boddhisatva, that are worshipped in the temple are known as efficacious, because they have completed the process of deification. Chau made six basic postulates regarding Shaanbei people's religious beliefs and practices, and the first one is as follows: "That there are gods (or that it does not hurt to assume that there are gods)" (Chau 2006, p. 66). I agree that this postulate fits almost everyone's religious mentality. Since a deity is efficacious because he/she has established efficacy, we do not need to question—if one dares to—the deity's efficacy, but all we should do is facilitate the exchange so the deity can present his/her efficacy. This makes the human–deity exchange a highly individualized experience, but also subject to traditional perceptions.

In rural areas, when people live in a single house, they often burn incense and offerings in the yard during the spring festival to renew their relationship with ancestors. One's house is proved to be a sacred place for a family to conduct their religious act. A few years ago, when I conducted fieldwork in Zhejiang province, I found it is a common approach to lay a sacrificial table outside the door for the hungry ghosts during the Qingming festival. This is a gesture meaning that one can feed the hungry ghosts as well as keeping them outside one's sacred domain. The family is defined by the sharing of the same stove (Duara 1988a, pp. 89–90) and, during each festival, "an atmosphere of sacredness and reverence pervaded every aspect of traditional Chinese family life, and the home became a complex center of religious worship" (Yang 1961, p. 29). Therefore, each family needs to share the incense from the village temple, and, by doing so, "Its burners mark the central points of households and the temple of that territory" (Feuchtwang 2001, p. 24). Thus, under urbanization, the first impact for the family is the tie between them and the tie is cut when

there is no temple or temple festival to mark deities' territory. Secondly, burning incense does not seem to fit in with the lifestyle in cities. The 1962-born Han is the inheritor of the craft of incense-making, which also represents intangible cultural heritage at the district level. He admitted that his handmade incense does not attract urban consumers for they are after something fancy, with a unique smell or special materials to create an exquisite atmosphere, while his incense only caters to the rural elderly women's needs of making offerings in the yard.

Therefore, even though burning incense is a crucial way to maintain relations, there are more restrictions in respect of urban life. In addition, spirit mediums may advise not to burn incense at one's house twice a month. A woman in her sixties, the wife of a local incense interpreter, warned her husband's followers to only burn incense in the temple. She explained that every time incense is burnt, deities will descend from heaven; however, (ordinary) people cannot see them, and they cannot communicate with them. "This will make the deity angry and the house restless", she concluded in an unregistered temple in Lu County. She emphasized the role of a third party partly because interpreting incense is their means of living, but also because it is widely accepted that not everyone is bestowed with such a talent. To be chosen by the deity to serve for a great cause only confirms these people's morality: deities only choose the good ones.

Either reformed temples or one's house are relatively stable sacred places, but because the other party in the binary exchange remains invisible, it relies on people to interpret the message. This relates to the practice of burning incense in the street, mostly seen in Qingdao and Zhengzhou. Drawing a circle with chalk involves marking the boundary of the sacred, which is the same logic for burning incense and paper money in one's yard: only the spirits of the loved ones or those being invited can enter to claim their offerings. Although burning incense is discouraged by the authorities for the reasons of civilized worship or posing a fire hazard, "it is the community that determines convention and affirms that a funeral has been performed properly" (Watson 1988, p. 6). In this case, the community confirms the efficacy of burning incense at the crossroad. Although the forms and sites of religion are regulated by the state, the core of religion cannot be altered easily. People practice religion in their conventional ways.

With the help of a piece of chalk, by drawing a circle, they create a sacred place, which is temporary but effective. This space ensures the burnt paper money and other offerings can only be received by the designated ancestor or spirit. On the one hand, it is the relational modality so people practice this at least twice a year to maintain a connection with their ancestors, in the name of filial piety. On the other hand, it is also a practice of the immediate modality, so people burn incense for something urgent. When the unexpected happens, people burn incense on the site to express their gratitude for whoever aids their loved ones in surviving an incident, or "bribe" whoever is responsible for the incident in the first place. This is a direct and reciprocal exchange that saves the trouble of a middle person to mediate. It relies on the person to self-verify their experience as efficacious or not. People do not need an agent to explain whether it is a deity or spirit that is accountable, they only need to conduct the exchange to fulfil their goal. Thus, the sacred place has become more flexible, deepening people's religious perception.

Most people are content with this efficacy-based religiosity because it is practical and embedded in one's daily life. For instance, it is a popular practice to dedicate a red banner with the words "Sincerity brings efficacy" (*xin cheng ze ling* 心诚则灵) to the deity after one's wish is granted, but it is never made clear what constitutes "sincerity". In other words, it is hard to quantify one's sincerity in popular religion when there are no classics or doctrines. People can treat the idea of being sincere as either being moral or being pious through the invested money or time. When converting to a religion, Buddhism or Protestantism require extra levels of religious commitment. Threatened by the rising Christianization in nearby villages, master Feng started to host monthly sermons or summer camps focused on martial arts and medical treatment. The majority of the participants were lured by the advertisement and wished to be cured by the master, but were less keen to learn the

karma teachings or Buddhist sutras that support the cure. To follow master Feng's path, one must sit in the summer heat and listen to sermons for at least six hours a day, and to be an orthodox Buddhist means to abstain from eating meat. This is not their everyday routine. However, there is something that only the three-chain exchange can provide: a religious agent with sufficient knowledge or answers.

Through a third party, people acquire knowledge not only about karma, but also about the deity. The sense of familiarity can consolidate one's ties with the deity. This is the long-lasting influence of the society of acquaintance (Fei 1992). Through a third party, especially a monk or a priest, what people find is not only intimacy, but also a belonging to the religious community, either centered on the deity or the agent. When the Monkey King temple in Lu County was about to be torn down due to village planning, the village head selected a location to build a new temple for the deity. That new location was near a dumpsite. "The monkey king is not happy," the incense interpreter in that village warned them, "he said he would leave us and move back to the mountain". Some devout believers were deeply worried, they kneeled and begged him to stay, to keep blessing the village. It was made clear that the deity is engaged with village life. The deity has a say in the village's management. It is argued that the revival of registered temples and churches signaled a tendency to not only revive religion but also pursue "a modernist future, intended to overcome 'backward' superstitious practices" (Liang 2014, p. 418). In other words, if the village shares a common belief, that belief determines the communal morality, namely what is in the public good. Being granted wishes also confirms one's morality: he/she is rewarded for being good and moral. After all, popular religion is constructed in this dualism: moral stories/efficacious legends, memorial sacrifice/purposeful sacrifice and upholding morals/rewarding merits (Wang 2005).

According to legend, Lady Chen is benevolent and compassionate. A famous story suggests that when parents were occupied with farming hundreds of years ago, they left their young children in the temple as daycare. The children were safe and sound under the deity's care so villagers made it a routine. After a while, the children started crying in the temple. The elderly explained to the young parents, "the children are making a mess. Lady Chen is offended". The parents then cleaned the temple and prayed for her forgiveness and kindness. After a while, everything went back to normal. What is revealed here is the common value of serving the community. Religion not only encourages moral action but also links individuals to communities (Meagher 2019, p. 19). It is a public manifestation of the communal good. Temples or deities being marginalized means that this role is handed over to the atheist state. Without temples hosting communal rituals, deities are deprived of the role of participating in rural life and supervising moral teachings.

The persistence of worshipping deities supports Duara's argument that the imperial state was impotent in controlling the rural sector; for example, villagers worshipping the same deity became mobilized through their incense association to build an irrigation system for the public good (Duara 1988a). However, when temples are no longer the center of the village, it is the religious communities that step in. Famous temples make donations in times of natural disaster or do volunteer work. The Party-state rules localities and their own civilizational institutions for the creation of public good through different kinds of control; that is, through the Bureaux of Culture and Tourism, or through law enforcement by treating popular cults and ritual practices of self-cultivation as criminally sectarian or superstitious (Feuchtwang 2012, p. 125). This means that popular religion is always entangled in various power relations. Once converted to Buddhism or Protestantism, popular religion faces the same fate: being treated as a superstitious practice. Buddhism claims to be orthodox and superior to any other (Daoist) deities, while for protestants, any deity other than God is demonic. Moreover, with systematic teachings and strict disciplines, institutional religions standardize people's religious outlooks. A protestant house is blessed because they are the sheep of the Lord, while Buddha's teaching can be dedicated to everyone in the family.

Hansen described an intriguing story in which a ghost possesses someone in a house when there are many deities enshrined there, and it is the lowest of gods, the stove god—not the distant Buddha, not the wandering Zhenwu (真武), not the dozing earth god—who tries to protect the Hong household from the intrusive ghost (Hansen 1990, p. 31). Now, even the worship of the stove god starts to transform into a folklore activity: with cultural memorial, not religious sacrifice. This makes one wonder, is burning incense at the crossroad so different from posting an effigy on the kitchen wall?

I argue that it is the state's years of infiltration into rural life and promotion of atheist discourses that imperceptibly reshape people's religious perceptions, resulting in a similar urban–rural dualism. Religion is built into the token of urban civilization. Converting to Buddhism surpasses the practice of popular religion; taking the Buddhist precepts surpasses only burning incense in the temple. This is because the former stresses the understanding of the belief, not simply acting. Burning incense at the crossroad is less favorable for it is a random act and is less controllable. Every year near the Qingming festival, there will be the government's initiative of conducting "civil" ancestor worship to replace feudalist superstition.

Cohen (1993) pointed out that the idea of the peasant as comprising a distinct and backward cultural category shows no sign of losing its force (Cohen 1993, p. 166). This is still the case today. Rural practices are easily associated with superstition or backwardness. Therefore, rural people use this as a weapon to carry forward their superstitious practices. When the state pushes forward cremation, they are forced to accept this practice but then they bury the cinerary casket in a normal-sized coffin to imitate the traditional burial. As a medium, a space reveals the physical presence of religion (Woods 2018, p. 532), so people take the freedom of choosing what is sacred for them. This is their private interaction with a deity, one's ancestor or some ghosts.

6. Conclusions

By reviewing rural and urban temples' revival strategies, I have argued that religious regulations and urbanization are part of the state's expectation of civilization. The rapid trend of urbanization has narrowed the space for popular religion to fulfil its goals as it used to; thus, it has had to make a private shift and relinquish its communal roles. Now, religious institutions seize this opportunity to aid people in the religious realm as well as facilitating the belonging of a community. Diversity and practical orientation help popular religion to bypass the state's regulations. Although some temples and deities may never be restored, related practices and stories are preserved. The binary exchange remains valid as it opens a direct channel and people have more freedom in choosing the modalities of "doing religion" to either maximize the efficacy (Chau 2011), or find the most practical one. Although religious sites are confined, practitioners can stick to the immediate-practical modality to burn incense at a crossroad or use the liturgy modality to host a funeral in the temple to enable the deceased to make their transition. This does not mean they are simply following tradition, because, as my data show, when they conduct an exchange, they are actively seeking a solution or an answer. This gives new meaning to burning incense for the deceased or setting off firecrackers to welcome the fortune god, because it shows how people review their daily practices and the places they believe to be sacred. Through the gift exchange, the principle of mutual reciprocity is confirmed, and so is the reward of being moral.

Beyond these contributions, I also observed some intriguing points to be further studied. First, the simplification of rituals and religious knowledge. What I found is a tendency of local deities giving way to regional deities such as Buddha or Guanyin. The imperial hierarchy and the distinction between deities and ghosts through the golden/silver paper offerings, as Feuchtwang (2001, 2010) discovered, seems to fade away. Second, the regional differentiation in religious worship. In the Lady Chen temple, there is another statue of LaoMu (老母), which is normally linked with a certain mountain, and, in this case, it is Mount Tai since it is the most prestigious mountain in the north. The temple keeper be-

lieves this reflects a regional difference: the worship of Lady Chen is similar to Matsu (妈祖), which is linked with the sea, while the worship of Laomu is linked with mountain worship derived from the agricultural civilization. However, despite this layout being preserved, no one knows exactly why this cultural collision occurs here. As a counterpart of Matsu, Lady Chen inherits the same core of blessing as the fishermen but never reaches the same level. Third, the influence of urban–rural dualism over people's religiosity. Urbanization does not necessarily mean people shift to a new identity, but it means people need to adapt to the new lifestyle. This might inspire people's conversion to an entirely new religion for the support of community.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: The information will be kept as the original information source by the faculty at Qingdao University of Technology for five years.

Acknowledgments: I would like to thank Patrick Guinness and Philip Taylor for their advice on this subject.

Conflicts of Interest: The author declares no conflict of interest.

Notes

1 Although burning incense in the temple is regarded as an act of benevolence, local people are not fond of young people investing too much time in temples. This is mainly because priests have to take a life of celibacy. In rural communities, marriage is still treated as the first priority, especially for women. Middle-aged and elder women often sit in the yard of the temple, waiting for the ritual to be finished, and discuss how their neighbors "purchase" a wife from Southeast Asia. They do not see this act as either illegal or immoral because, in rural communities, the power of convention triumphs over everything else.

2 A similar discussion is found in Gail Hershatter's *The Gender of Memory: Rural Women and China's Collective Past*. In Chapter 2: No One Is Home, it is made clear that women should be kept from public sight while men in their family are the only representatives.

3 During 2017, when I conducted my fieldwork in Lu County, almost every temple festival was accompanied by at least three days of opera performances. Villagers would compare the quality and the expenditure of the operas as an indicator of the village's or the temple's wealth.

References

Byrne, Denis. 2019. Divinely significant: Towards a post-secular approach to the materiality of popular religion in Asia. *International Journal of Heritage Studies* 26: 857–73. [CrossRef]

Cao, Meng. 2014. Rituals' role in constructing the belief of Benzhu. *People's Tribune* 2: 187–89.

Cao, Nanlai. 2016. Migrant Chinese Christianity in France: Overlapping networks and communal commitments. *Sociological Studies* 3: 152–69.

Chau, Adam-Yuet. 2006. *Miraculous Response: Doing Popular Religion in Contemporary China*. Stanford: Stanford University press.

Chau, Adam-Yuet. 2011. Modalities of doing religion and ritual polytropy: Evaluating the religious market model from the perspective of Chinese religious history. *Religion* 41: 547–68. [CrossRef]

Chen, Chunsheng. 1999. The evolution of the belief space and community history: A study based on temples' system in Zhanglin. *The Qing History Journal* 2: 1–13.

Chen, Chunsheng. 2001. The symbolic and historical significance of popular cults in Chaozhou. *Journal of Historical Science* 1: 123–33.

Chen, Ningning. 2016. Secularization, sacralization and the reproduction of sacred space: Exploring the industrial use of ancestral temples in rural Wenzhou, China. *Social & Cultural Geography* 18: 530–52.

Cohen, Myron L. 1993. Cultural and political inventions in modern China: The case of the Chinese peasant. *Daedalus* 122: 151–70.

County Gazetteer. 1743. *The County Magistrates*. Zhengzhou: Local Government.

County Gazetteer. 2014. *The Lu County Local Chronicles Committee*. Zhengzhou: The Zhongzhou Ancient Books Press.

Duara, Prasenjit. 1988a. *Culture, Power, and the State: Rural North China, 1900–1942*. Stanford: Stanford University Press.

Duara, Prasenjit. 1988b. Superscribing symbols: The Myth of Guandi, Chinese god of war. *The Journal of Asian Studies* 47: 778–95. [CrossRef]

Durkheim, Emile. 1995. *The Elementary Forms of Religious Life*. Translated by KE Fields. New York: The Free press.

Fan, Lizhu. 2010. The resurgence and strategy of Chinese popular religion in north rural China. *Gansu Theory Research* 201: 63–70.

Fei, Xiaotong. 1992. *From the Soil: The Foundations of Chinese Society*. Translated by Gary G. Hamilton, and Wang Zheng. Berkeley: University of California Press.

Feuchtwang, Stephan. 1977. School-temple and city god. In *The City in Late Imperial China*. Edited by William Skinner. Stanford: Stanford University Press.
Feuchtwang, Stephan. 2001. *The Imperial Metaphor: Popular Religion in China*. London and New York: Routledge.
Feuchtwang, Stephan. 2010. *The Anthropology of Religion, Charisma and Ghosts: Chinese Lessons for Adequate Theory*. Religion and Society, vol. 46. Berlin: De Gruyter.
Feuchtwang, Stephan. 2012. Chinese civilization in the present. *The Asia Pacific Journal of Anthropology* 13: 112–27. [CrossRef]
Gao, Bingzhong. 2000. Problems related to the legitimation of associations in China. *Social Science in China* 2: 100–9.
Gao, Bingzhong. 2001. Folk rituals and state presence. *Journal of Peking University (Humanities and Social Sciences)* 38: 42–50.
Gao, Bingzhong. 2006. An ethnography of a building both as museum and temple: On the double-naming method as arts of politics. *Sociological Studies* 21: 154–68.
Gao, Bingzhong. 2021. From feudalist superstition to cultural heritage. *Journal of Yangtze University (Social Sciences Edition)* 44: 13–17.
Goossaert, Vincent, and David A. Palmer. 2011. *The Religious Question in Modern China*. Chicago and London: The University of Chicago Press.
Hansen, Valerie. 1990. *Changing Gods in Medieval China, 1127–1276*. Princeton: Princeton University Press.
Ji, Zhe. 2009. Gift exchange as an elementary form of religious life. *Sociological Studies* 24: 1–25.
Katz, Paul R. 2014. *Religion in China and Its Modern Fate*. Waltham: Brandeis University Press.
Kipnis, Andrew B. 2001. The flourishing of religion in post-Mao China and the anthropological category of religion. *The Australian Journal of Anthropology* 12: 32–46. [CrossRef]
Lai, Hongyi Harry. 2003. The religious revival in China. *Copenhagen Journal of Asian Studies* 18: 40–64.
Li, Geng. 2015. Diviners with membership and certificates: An inquiry into the legitimation and professionalisation of Chinese diviners. *The Asia Pacific Journal of Anthropology* 16: 244–59. [CrossRef]
Li, Huawei. 2008. Rural Christianity and the reforming of the rural public sphere: A case study on the interaction of lineage, temple fair and rural Christianity in village Li. *Folklore Studies* 4: 72–101.
Li, Xiangping. 2012. Belief is the Construction of Power Relationship—Anthropological Analysis of Belief Relationship in Chinese Society. *Journal of Northwest University for Nationalities (Philosophy and Social Science)* 5: 1–17.
Li, Xiangping, and Yang Yang. 2019. From spatial orientation to spatial dislocation: The transformation of mode of folk beliefs in the course of urbanization. *Southeast Academic Research* 3: 200–7.
Li, Yongping, and Meiyan Zhong. 2016. The sacred and the secular: Women's belief practices and values. *Journal of Beifang University of Nationalities* 127: 120–23.
Liang, Yongjia. 2014. Morality, gift and market: Communal temple restoration in Southwest China. *The Asia Pacific Journal of Anthropology* 15: 414–32. [CrossRef]
Liang, Yongjia. 2015. Religious revival in rural China and the fate of Religion in China. *Society* 35: 161–83. [CrossRef]
Liang, Yongjia. 2018. Discover the connection of Otherness: Based on the Dongjing group and Lianchi group. *Dushu* 3: 135–43.
Liu, Dawei. 2018. The production of space and the shift in belief: A study based on spirit mediums in Shanghai against urbanization. *Southeast Academic Research* 2: 202–8.
Liu, Huan. 2021. Study on the Rural Custom Civilization Construction from the Perspective of Rural Revitalization. Ph.D. thesis, Jilin University, Changchun, China.
Meagher, Benjamin R. 2019. Moral representativeness and satisfaction with one's religious community. *The International Journal for the Psychology of Religion* 29: 18–31. [CrossRef]
Palmer, David A. 2011. Gift and market in the Chinese religious economy. *Religion* 41: 569–94. [CrossRef]
Qian, Junxi, and Lily Kong. 2017. Buddhism Co. Ltd.? Epistemology of religiosity, and the re-invention of a Buddhist monastery in Hong Kong. *Environment and Planning D: Society and Space* 36: 1–19. [CrossRef]
Sato, Yoshifumi. 2018. Between "superstition" and intangible cultural heritage: A discussion on popular religion and rural women in the lower Yangtze delta in contemporary China. *Folklore Studies* 1: 42–50.
Siu, Helen F. 1990. Recycling tradition: Culture, history, and political economy in the Chrysanthemum Festivals of south China. *Comparative Studies in Society and History* 32: 765–94. [CrossRef]
Wang, Yifu. 2005. Folk beliefs as viewed from local records and notes in Fujian. *Southeast Academic Research* 5: 26–34.
Watson, James L. 1988. The structure of Chinese funerary rites: Elementary forms, ritual sequence, and the primacy of performance. In *Death Ritual in Late Imperial and Modern China*. Edited by James L. Watson and Evelyn S. Rawski. Berkeley: University of California Press, pp. 3–19.
Woods, Orlando. 2018. Spaces of the Religious Economy: Negotiating the Regulation of Religious Space in Singapore. *Journal for the Scientific Study of Religion* 57: 531–46. [CrossRef]
Wu, Licai, and Liang Zhang. 2010. Peasants' beliefs: Lost or transformed. *The Journal of Humanities* 2: 175–80.
Yang, Ching Kun. 1961. *Religion in Chinese Society: A Study of Contemporary Social Function of Religion and Some of Their Historical Factors*. Berkeley: University of California Press.
Yang, Fenggang. 2006. The red, black, and grey markets of religion in China. *The Sociological Quarterly* 47: 93–122. [CrossRef]
Yang, Hua. 2014. Why underground Christianity spreads in the rural. *Chinese Rural Discovery* 4: 178–83.
Yang, Martin C. 1945. *Taitou, Shantung Province: A Chinese Village*. New York: Columbia University Press.

Yang, Mayfair. 2000. Putting global capitalism in its place: Economic hybridity, Bataille, and ritual expenditure. *Current Anthropology* 41: 477–509. [CrossRef]
Yue, Yongyi. 2014. *Doing Good: The Rural Logics and Temple Festivals*. Hangzhou: Zhejiang University Press.
Yue, Yongyi. 2016. The nation-state, the contract responsibility system, and the economy of temple incense: The politics and economics of a temple festival on a landscaped Holy Mountain. *Rural China: An International Journal of History and Social Science* 13: 240–87.
Yue, Yongyi, and Jiaqi Cai. 2017. The thirty-years study of the Dragon Tablet. *Studies of Ethnic Literature* 35: 36–52.
Zhang, Liang. 2014. The disintegrating rural publicity and the development of Christianity culture. *The Journal of Humanities* 3: 101–7.
Zhao, Cuicui. 2018. The interaction of religious beliefs and its privatization trait. *Studies in World Religions* 1: 61–72.
Zhao, Cuicui, and Xiangping Li. 2014. The types of belief and its social construction. *Folklore Studies* 1: 144–51.

religions

MDPI

Article

Connecting the Sacred: Network Analysis of Buddhist Images on Early Medieval Chinese Pagodas from Nannieshui, Shanxi

Jinchao Zhao

Department of Cultural Industries, School of Humanities, Tongji University, Shanghai 200092, China; zhaojinchao123@tongji.edu.cn

Abstract: The production of stone sculptures in the form of statues, steles, and pagodas was arguably one of the most prominent forms of Buddhist devotion in early medieval China. The abundant Buddhist imagery and devotional inscriptions adorning their surfaces provide rich information on their creation, commission, consecration, and worship, which is essential for comprehending the local community's religious landscape. This paper employs a network analysis approach to visualize and analyze the spatial arrangement of Buddhist images on the surfaces of pagodas from Nannieshui 南涅水, Shanxi 山西 Province. Network analysis reveals that Nannieshui pagodas were commissioned and worshipped differently from other kinds of stone sculpture, as shown by its emphasis on the spatial and sequential order of Buddhist images depicted on the exterior of these pagodas.

Keywords: pagoda; Shanxi; northern dynasties; network analysis

Citation: Zhao, Jinchao. 2023. Connecting the Sacred: Network Analysis of Buddhist Images on Early Medieval Chinese Pagodas from Nannieshui, Shanxi. *Religions* 14: 625. https://doi.org/10.3390/rel14050625

Academic Editor: Z. George Hong

Received: 8 January 2023
Revised: 15 April 2023
Accepted: 23 April 2023
Published: 6 May 2023

1. Introduction

A large number of stone blocks that were discovered in Nannieshui 南涅水, in Qinxian 沁縣, Shanxi 山西 Province, are elaborately decorated with rich imagery (Figure 1). Previous studies have found that these blocks had been stacked up in diminishing size to look like pagodas, the quintessential symbol and architecture of Buddhism.[1] Typically, pagodas in early medieval China appear in a multi-story, tower-like form (Figure 2).[2] The Buddhist imagery depicted on the surface of the stone blocks that had been stacked into pagodas is significant in terms of religion, art, and architecture. By using network analysis, we examine and visualize the spatial arrangement of Buddhist images on stone blocks found in Nannieshui. It highlights the spatial and sequential features of Buddhist images depicted on stone blocks, revealing the way Nannieshui stacked pagodas were commissioned and worshiped as distinct from other types of stone sculptures.

Buddhist stone sculpture, such as statues, steles, and pagodas, constitute the largest group of material evidence of Buddhist worship in early medieval China. Erected mostly within temple complexes but also near local roads, these sculptures consecrated space. The abundant Buddhist imagery and devotional inscriptions on the surfaces of these stone works form an array of configurations that were shaped by their design and for a particular audience. Therefore, understanding the commissioning, consecration, and worship of these sculptures is crucial to understand the local religious landscape.

Recently, digital tools and analytical approaches have been applied by a number of scholars in religious studies, but primarily in examining temple sites in certain regions on a macro-level through the lens of GIS techniques and in analyzing the historical networks of eminent monks and individuals in literary or political circles.[3] Art historians and archaeologists have explored Buddhist temple sites,[4] murals in cave temples,[5] and reliefs on individual statues.[6] Digital imaging techniques, such as 3D modeling and photogrammetry, have been employed in studying Buddhist sites and sculptures in exceptional detail and clarity.[7] The spatial depth and color adjustment made possible through diagonal shapes, layered landscapes, and vanishing points, have proven particularly helpful in studying

stone objects that often bear erosion and damage marks. Moreover, digital annotation reveals specific effectiveness in explaining iconography, epigraphs, inscribed names, and related religious texts.

Figure 1. Stocked pagodas on display in Qinxian Museum, Shanxi province. Source: *Nannieshui shike*, vol. 2, color plate 4.

Figure 2. Cao Tiandu 曹天度 Pagoda. Shuozhou, Shanxi Province. 466 CE, Northern Wei Dynasty. Stone. H. 211.7 cm (with chattra top). Repository: National Palace Museum, Taipei (*Chattra* in the Chongfu Monastery, Shanxi). Photo courtesy of Shih-yi Tu.

However, the rich data revealed in the pictorial programs and epigraphical sources on stone implements are usually examined on an individual basis. Art historians focus on the development of a particular image or the configuration of images on a few selected steles or statues. In Buddhist studies scholars focus on historical information and Buddhist doctrine recorded in epigraphs. The large number of stone sculpture from early medieval China has so far not been examined quantitatively. In this regard, studying a larger number of stone carvings as a group, as tools, environments, and frames, opens a venue for interdisciplinary studies in multiple aspects.

Below we explore how digitization and the application of network analysis can enhance our understanding of a group of almost 400 stone blocks that were once stacked up

to form 2–4 m tall Buddhist pagodas in the sixth century at Nannieshui County in Shanxi province. We pay particular attention to questions of the spatial relations and the periodization revealed by the carvings, thus providing evidence for understanding their commissioning and how they were used in worship as distinct from other types of statues and steles. Spatial arrangement here refers to the arrangement of images and epigraphs on the surface of a stone block, allowing for an inquiry into their religious significance and forms of worship. With the typical four-sided arrangement found at Nannieshui and the symbolic significance of pagoda worship, a natural spatial order emerges almost inevitably. Such arrangements are not found easily on other relief carving context, such as stone slabs, cliff carvings, or cave-temple interiors.[8] Are these arrangements pagoda-specific? What kind of order do the horizontal image configurations on each stone block follow? What do these orders say about Buddhism in a sixth-century Nannieshui county? In short, embedded in the scholarship of digital humanities at intersections between religion, art, and history, this study provides a new venue to deepen our understanding of the disarranged stone blocks used to stack pagodas.

2. Materials

Over 800 stone Buddhist sculptures, including individual statues, figured steles, and about 400 cubical or trapezoidal stone blocks, were discovered in 1957 in hoarding pits from a former temple site in the Nannieshui County of Shanxi province (Y. Guo 1959; T. Guo 1979; Shanxi Sheng Kaogu Yanjiusuo 1994; *Qinzhou zhi* 2003; Yagi 2004; Ishimatsu 2005; M. Zhang 2005; Cao 2011; Gao 2012; Zhao 2021; Shanxisheng Kaogu Yanjiuyuan and Qinxian Wenwuguan 2022) (Figure 3). These 400 or so stone blocks were originally stacked up in decreasing sizes to create multilevel pagodas upon commissioning. In an attempt to reconstruct them as they would have appeared originally, these stone blocks are displayed in the Qinxian Museum stacked vertically (see Figure 1).[9] The majority of Nannieshui pieces are in reasonably good shape and still bear inscriptions from the Song dynasty (960–1279) that supports the idea that they were intentionally buried in hoarding pits. Similar types of stone blocks, scattered across different sites, and less numerous than those found in Nannieshui, have also been found in eastern Gansu 甘肅 province.[10]

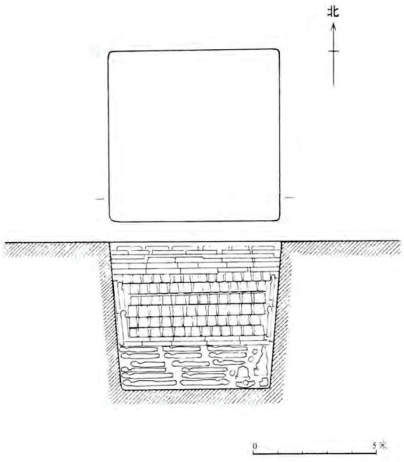


Figure 3. Diagram of the hoarding pit. Stone blocks were arranged in the middle section above statues and below steles. Source: *Nannieshui shike*, vol. 1, Figures 1–3.

According to the dedicatory inscriptions and the carving styles, the majority of stone blocks from Nannieshui were commissioned during the late fifth and sixth centuries, when northern China was ruled by the Northern Wei 北魏 (386–534), Eastern Wei 東魏 (534–50),

Western Wei 西魏 (535–57), Northern Qi 北齊 (550–77), and Northern Zhou 北周 (557–81). Since the conquest of northern China by non-Han regimes, Buddhism has thrived throughout China's religious landscape in spite of the political chaos and social upheaval. Both members of the imperial elite and commoners funded the construction of larger pagoda buildings and commissioned miniature pagodas.[11] The depiction of pagodas in reliefs and murals also proliferated in Buddhist cave temples and on Buddhist statues and steles.[12]

Among Nannieshui sculptures, each surviving stone block is decorated with Buddhist images on all four sides, suggesting that imagery plays a fundamental role. As a result, the stone blocks are sometimes referred to as *simianxiang* 四面像 (a four-sided image), or *zaoxiangshi* 造像石 (an image stone) in previous studies. However, inscriptions and the vertical rise of their multilevel structure suggest that they were created as pagodas, despite the fact that there are very few pieces that exhibit components imitating timber structures. The extensive use of Buddhist imagery on the surface of these stone blocks, in contrast to the simplification of structural elements, presents important issues that need to be addressed across the fields of religion, imagery, and architecture. What connection exists between the images chosen for each stone block? How did they fit into the local stone carving tradition's artistic, historical, and religious contexts? How did they relate to and differ from the common practice of erecting pagodas and commissioning Buddhist sculptures at the time? Furthermore, the reasoning behind the existing arrangement of these stacked pagodas in the Qinxian museum was made decades ago. It is important to revisit the decisions that went into the current arrangement of these stone blocks on display.

How is network analysis relevant to the study of Nannieshui stone blocks? As Johanna Drucker elaborates, "digitized art history" is based on the use of online resources, while "digital art history" uses computational methods, see (Drucker 2013; Brown 2020, p. 2). Network analysis is less commonly used in art history, especially when compared with digitization techniques, such as 3D scanning, relief annotation, etc. In the case of the Nannieshui stone blocks, network analysis can assist us to analyze and visualize the connections between the topics and the physical placement of each of the blocks independent from its modern display in the museum. It allows us to see which motifs were most central and how they relate to others in the program.

It is not possible to discern these connections and quantities by looking at the circa 400 blocks individually. Evaluating the various interdependent relations is necessary to answer queries about image arrangement. In the end, we want to know how various images were aligned on each stone block, how these stone blocks were stacked up, and if the configuration of images has altered over time. As previous scholarship mainly focuses on examining the most peculiar individual images and overall stylistic development through the sixth century, examining the iconography of images, their configuration on each stone block, and the symbolic meaning will provide us with new information about the religious significance of these stone blocks.

3. Dataset and Method

Investigating the 1544 sides of 386 stone blocks from Nannieshui, I have employed a network method to examine the images depicted on each of the four sides on each stone block. Network structure and data process are proved to be useful tools in understanding the complex nature of interactions among large numbers of figures (comparable to "actors", a term that is used in traditional network analysis works that focus on historical figures) in play, whether they are people or art objects. Historical network research has developed rapidly over the decades, constituting a salient method of examining the network of communicative interaction between people with the help of a formal model.[13] Scholars in Buddhist studies have used the method to examine eminent historical figures in Buddhism. Presenting a network analysis through visualization enables one to leverage the perceptual abilities of humans and identify features in network structure and data. For instance, social network analysis has been applied to record interactions between large

number of actors in Chinese Buddhist history, examining historical constellations and discovering new patterns of interactions, for instance, see (Bingenheimer 2018, 2020).

The network model moves away from individual instances of persons, works of art, or places toward analyzing the inter-relatedness of arbitrarily many instances and the evolving dynamics. This emphasis on groups rather than individuals thus aligns with our goal of analyzing the pagodas from Nannieshui as a group, composed of stone blocks, which are in turn conceptualized as ordered groups of images. A formal approach that models the Nannieshui pieces systematically as computable data enables us to discover patterns that are difficult to discern otherwise.

In particular, a network analysis enables us to reflect on, firstly, the configuration of images on each stone block and quickly identify those blocks that share the same configuration. In this regard, the metrics help to clarify the roles and importance of individual nodes (stone blocks as well as motifs depicted on each side of stone blocks), as well as the potential significance of the horizontal, sequential order of images on each stone block. Secondly, we can locate stone blocks that share the same configuration of images and explore their distribution within the larger group, even understand the popularity of each configuration in different time periods. Such an analysis will also produce quantitative evidence that will allow us to re-examine the chronology of Nannieshui stone blocks. Thirdly, the particular sequential ordering of images in a clockwise manner, as revealed by this study, reflects that the pagodas were used for circumambulation, alerting us to a difference between such free-standing pagodas, which are accessible from all sides, and steles and statues, which are clearly oriented with a "front" and a "back" in space.

Below, I am using Gephi, an open-source software for graph and network analyses (Bastian et al. 2009; Jacomy et al. 2014). Gephi processes large networks with complex datasets in real time and produces visual results that are valuable to explore and interpret networks. In this research, I model the network of Nannieshui stone blocks into a bi-modal network consisting of 410 nodes and 841 edges. The nodes are the summed results of 386 stone blocks and 24 different motifs (such as the standing Buddha, the pensive bodhisattva, etc.) that are found adorning the sides of these blocks (Figure 4).[14] The edges refer to all the connections between all the stone blocks and every motif adorning them (Figure 5). The spreadsheet of nodes includes detailed information of motif and stone blocks for reference, such as the discovery place, repository, execution date, material, and size of each stone block, and secondary iconographic elements of each side.[15]

To display the dataset in Gephi, I use the *Force Atlas 2* algorithm. *Force Atlas 2* results in a layout that gathers stone blocks, sharing similar pictorial programs of images. The node located centrally to each cluster is usually a motif in discussion (Figure 6). A motif-node stands out particularly if it is represented on more than one side of a stone block. In some cases, the motif-node is not easily identifiable if it is not frequently depicted at Nannieshui.

To distinguish motif-nodes from surrounding nodes of stone blocks, I have added two columns in the node list spreadsheet. One column applies an add-on named "polygon" to sort nodes by shapes. I assigned square to represent blocks while triangle to represent motifs. The other new column regulates colors of nodes for each question to be discussed. However, nodes are not sized proportionally to connectivity since the current design includes two different sets of nodes (motifs and stone blocks). The proportional size of different nodes might affect the visualization clarity.

Connections (edges) are effectively weighted according to how many times a motif is depicted on a four-sided stone block. The four-sided look of all stone blocks determines the maximum weight of 4.0, indicating a motif being depicted on all the four sides of a single stone block. All edges are sized proportionally to connectivity.

	ID	Access-no	discoveryPla	discoveryPlace_la	repositoryPl	dataEst_CE	material	bottom-leng	mainFigure	attendants	disciples	additional	niche
1	m001								seated Buddha in medi	two standing	none	none	arche
2	m002								seated Buddha in fearl	two standing	none	none	arche
3	m003								seated Buddha in medi	attendant dc	none	none	arche
4	m004								seated Buddha in fearl	attendant dc	none	none	arche
5	m005								seated Bodhisattva wit	none	none	none	arche
6	m006								seated Buddha with le	two standing	none	none	arche
7	m007								seated Buddha in medi	none	none	seated Buddl	arche
8	m008								standing Buddha	none	none	none	arche
9	m009								Coffin burning	two standing	none	none	none
10	m010								Maitreya	none	none	none	arche
11	m011								Twin Buddhas	none	none	none	arche
12	m012								Conception	none	none	reborn being	arche
13	m013								Mahasattva jataka	none	none	none	none
14	m014								Pensive bodhisattva	none	none	none	none
15	m015								Pensive bodhisattva	none	none	horse	none
16	m016								Vimalakirti and Maitre	none	none	none	none
17	m017								Bodhisattva	none	none	none	none
18	m018								Ashoka story	two guardiar	none	seated buddl	arche
19	m019								Four seated Buddhas	none	none	none	none
20	m020								Nirvana	none	none		
21	m021								On elephant	two standing	none	none	none
22	m022								fasting buddha	none	none	none	none
23	m023								two standing bodhisattvas				
24	m024								unknown				
25													
26	s001	QN 1	Nannieshui		Nannieshui	NW-YC-510s	limestone	54					
27	s002	QN 2	Nannieshui		Nannieshui	EW-530S	limestone	47					
28	s003	QN 3	Nannieshui		Nannieshui	EW-530S	limestone	44					
29	s004	QN 4	Nannieshui		Nannieshui	NW-XP-520S	limestone	39					
30	s005	QN 5	Nannieshui		Nannieshui	NW-520S	limestone	36					
31	s006	QN 6	Nannieshui		Nannieshui	NW-517	limestone	33					
32	s007	QN 7	Nannieshui		Nannieshui	EW-530S	limestone	41					
33	s008	QN 8	Nannieshui		Nannieshui	EW-530S	limestone	41					
34	s009	QN 9	Nannieshui		Nannieshui	NW-EW	limestone	35					
35	s010	QN 10	Nannieshui		Nannieshui	NW-520S	limestone	33					
36	s011	QN 11	Nannieshui		Nannieshui	NW-520S	limestone	31					
37	s012	QN 12	Nannieshui		Nannieshui	EW-530S	limestone	30					
38	s013	QN 13	Nannieshui		Nannieshui	EW-533	limestone	33					
39	s014	QN 14	Nannieshui		Nannieshui	EW-530S	limestone	58					
40	s015	QN 15	Nannieshui		Nannieshui	EW-530S	limestone	54					
41	s016	QN 16	Nannieshui		Nannieshui	NW-520S	limestone	57					

Figure 4. A section of the dataset of nodes, formatted for use with Gephi software. The 24 identified motifs are prefixed m-. Stone blocks are named from s001 to s386, following the order of their reference in the archaeological report.

	A	B	C	D
1	ID	Source	Target	face
2	e0001	s001	m001	s001-1
3	e0002	s001	m001	s001-2
4	e0003	s001	m001	s001-3
5	e0004	s001	m001	s001-4
6	e0005	s002	m011	s002-1
7	e0006	s002	m018	s002-2
8	e0007	s002	m010	s002-3
9	e0008	s002	m014	s002-4
10	e0009	s003	m018	s003-1
11	e0010	s003	m003	s003-2
12	e0011	s003	m003	s003-3
13	e0012	s003	m011	s003-4
14	e0013	s004	m003	s004-1
15	e0014	s004	m003	s004-2
16	e0015	s004	m004	s004-3
17	e0016	s004	m004	s004-4
18	e0017	s005	m001	s005-1
19	e0018	s005	m001	s005-2
20	e0019	s005	m001	s005-3
21	e0020	s005	m001	s005-4
22	e0021	s006	m001	s006-1

Figure 5. A section of the dataset of edges, formatted for use with Gephi software.

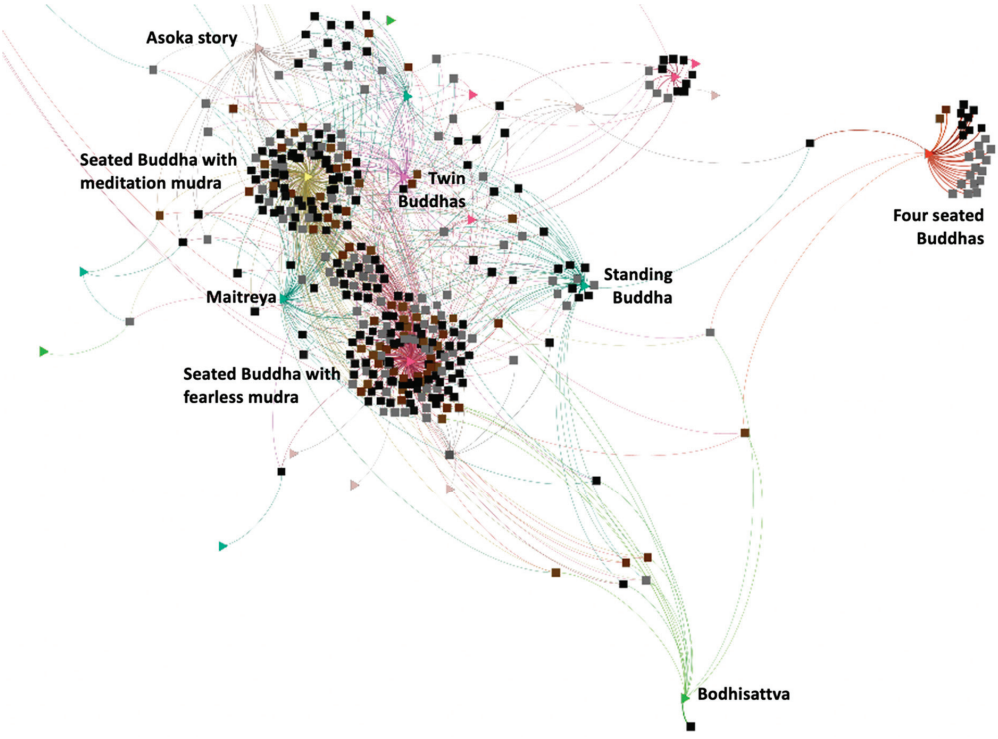


Figure 6. The layout using *Force Atlas 2* algorithm. Square nodes: stone blocks (black nodes: Phase I-Northern Wei; grey nodes: Phase II-Eastern Wei; brown nodes: Phase III-Northern Qi). Triangle nodes: motifs (colored for clarity). Nodes not sized by degree.

Considering the clarity of the layout, I chose not to display the synchronic distinction or chronology of stone blocks in this network analysis. Instead, I assigned different colors to the three phases to which most Nannieshui blocks can be dated (Black nodes: Phase I-Northern Wei; grey nodes: Phase II-Eastern Wei; brown nodes: Phase III-Northern Qi). This allows us to see the sense of time embedded in the large number of blocks from Nannieshui as well as the change in each motif over time. Most blocks from Nannieshui do not bear inscriptions with precise dates. However, it is sufficient to apply a traditional art historical approach to construct a categorization of time phases based on stylistic traits displayed on each block. While in the dataset, I entered the estimated dates for each block as precisely as I could; I also divided the blocks into three main phases for visual clarity. These three time periods do not overlap precisely with the dynastic reigns of late Northern Wei (386–525), Eastern Wei (534–550), and Northern Qi (550–577), but they are a close approximation. A brighter color palette is employed to highlight nodes of motifs.

The visualization requires an interpretative framework in order to understand the religious phenomena more fully. The following section employs formal methods to discuss specific motifs and show how the visual metaphor of a separate cluster can serve as a heuristic tool that pinpoints questions on patterns of image alignment in Nannieshui.

4. Discoveries and Interpretations

The visualization of the alignment of motif on Nannieshui stone blocks in Gephi makes it possible to discern different sequential orders of the alignment of motifs from the same block. The immediate visualization of these patterns reveals that the same group

of motifs is often aligned in the same sequential order, which is crucial to understand the use of these blocks in ritual veneration.

4.1. Overall Discovery of Patterns in Images from Nannieshui

The visualization result shows a main section with several smaller clusters loosely connected on the edge (see Figure 6). The main section is further composed of clusters appearing in a different degree of density. A cluster usually forms with a motif-node in the center, surrounded by nodes of stone blocks that display the selected motif on one or more sides. Therefore, the denser the cluster, the more likely that the central motif is repeated on more than one side of the block. The center-periphery appearance also reveals the frequency of motifs in connection with the rest. The further a cluster floats from the main section, the less likely the motif-node of that cluster is aligned with other motifs.

Within the main section, two large clusters stand out in the center, indicating that the two motifs in the center of the two clusters—the seated Buddha with a fearless mudra and the seated Buddha with a meditation mudra—are the most frequently depicted motifs on Nannieshui stone blocks. The density of nodes in the two clusters indicates that often each of the two motifs is depicted repeatedly on more than one side of a block. Therefore, nodes from the smaller cluster located in between the two large clusters represent blocks that display each of the motifs under discussion on two out of the four sides of a block.

According to the assigned color palette that denotes the dates of execution, the two main motifs retained their popularity through the three periods at Nannieshui. Yet, the lower cluster, which centers on the motif—the seated Buddha with a meditation mudra—apparently includes more nodes in brown. This suggests that depicting the motif (a seated Buddha with a meditation mudra) on all four sides of a block became more popular during the third phase (~Northern Qi).

Similarly, the formation of a smaller cluster located to the right of the main section, which is centered on the motif of the standing Buddha, reveals the frequency of this motif being repeatedly carved on more than one side of a stone block (Figure 7). Figure 6 shows the overview of every link connected to the node of the standing Buddha motif. It highlights blocks that display the motif of the standing Buddha, as well as other motifs that are found aligned with the standing Buddha on any blocks. From the perspective of the center-periphery pattern as discussed above, on the five nodes located in the inner most ring of this cluster, the standing Buddha motif is portrayed on all the four sides of them. Nodes in the outer ring denote blocks that display the standing Buddha on three sides. The color difference further tells us that this phenomenon of repeating the standing Buddha motif on every side of a stone block took place only in the first two periods.

Another interesting visual pattern from the network analysis of Nannieshui blocks is the configuration of nodes regulated in groups (Figure 8). Above the two main clusters, we find such a group, including over 12 nodes of stone blocks. All these nodes share the exact same alignment of motifs on four sides in the same sequential order. The four motifs are the twin Buddhas, the Ashoka story, Maitreya, and the pensive bodhisattva (Figure 9). The node that is located slightly separated from the rest in the group features the four motifs like the other stone blocks while the sequential order of the four motifs is slightly different. The color difference further indicates that this alignment of motifs flourished primarily in Phase I but gradually declined in popularity in the following decades.

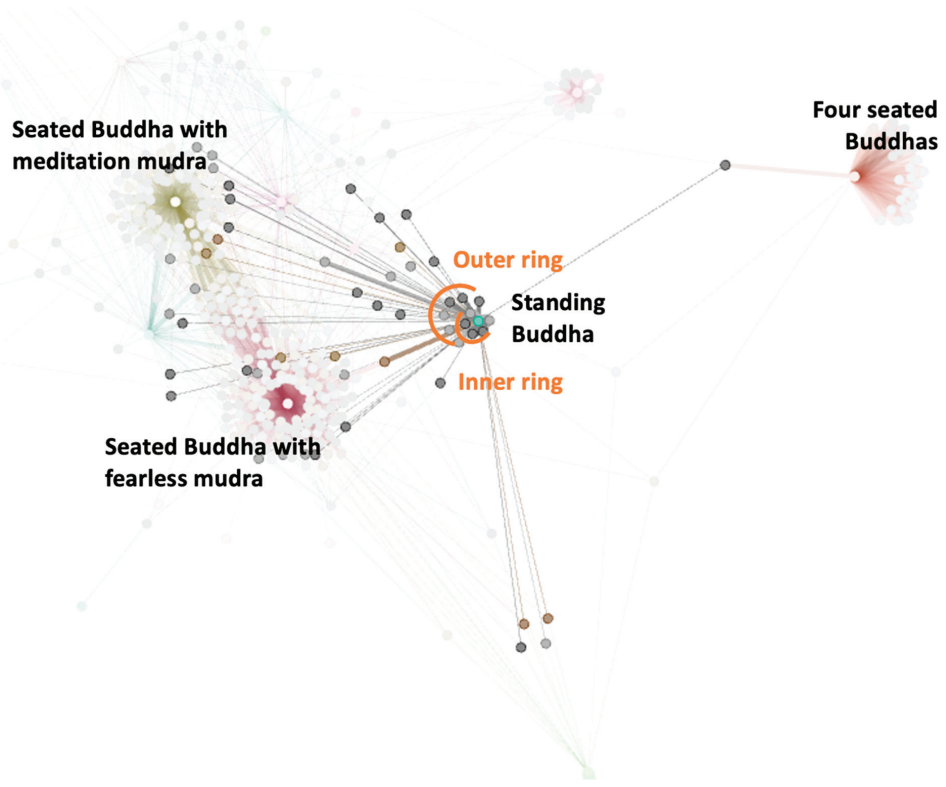


Figure 7. The node of the standing Buddha and connected stone blocks.

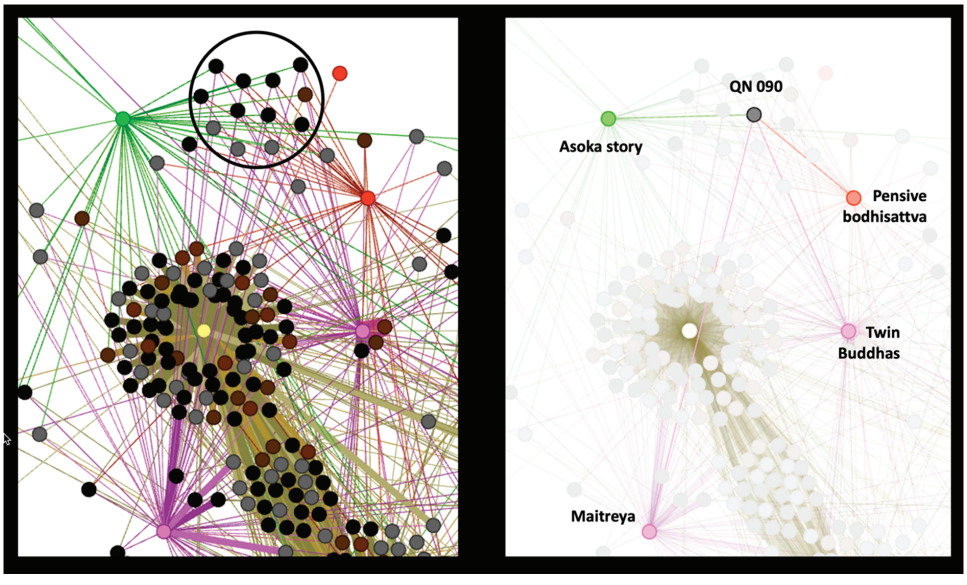


Figure 8. Twelve stone blocks that share the same alignment of images; the block QN 090 as an example.

Figure 9. QN 90, Northern Wei. W. 35–38 cm; H. 38 cm. Clockwise from upper left. Source: *Nannieshui shike*, vol. 2, Figure 106.

From the perspective of the color difference, stone blocks that dated to the third phase are often found in clusters, indicating their popularity being repeatedly rendered on an individual block. In other words, the alignment of motifs mattered less and less at Nannieshui. The diminishing emphasis on the sequential order of motifs on blocks at Nannieshui correlates with the shifted perception of these blocks. A previous study of the author reveals a periodical shift from *futu* 浮圖 to *xiang* 像 and argues that the self-reference of *xiang* in inscriptions found on stacked pagodas is a phenomenon that had not taken place until the late sixth century (Zhao 2021). This shift of self-denotation of Nannieshui pagodas from *futu* to *xiang* lies in the specific emphasis on individual images on a side or the four-sided stone blocks, or *xiang*, which was fundamentally shaped by the very making and commissioning process of stacked pagodas. In addition, the growing understanding of the miraculous deeds of *xiang* also contribute to the transformation from *futu* to *xiang* among stacked pagodas.

4.2. Separated Clusters and Idiocyncratic Alignments

One can easily spot several smaller clusters floating far from the main section through the lens provided by the force-driven algorithm. This pattern refers to two layers of information (see Figure 6). Firstly, a small cluster always centers on a particular motif-node. Secondly, nodes of blocks located close to the motif-node always feature the central motif repeatedly on its three or four sides. For instance, the bottom cluster centers on the motif of the standing bodhisattva, but most blocks displaying this subject are located in between the motif-node and the main section. The only stone block located close to it depicts the bodhisattva motif on its four sides. Moreover, the cluster located to the upper right centers on the motif of the four seated Buddhas (hereafter the four Buddhas) and connects to the main section via merely three nodes. Except for these three nodes connecting with the main section, within this small cluster, all nodes relate to the node at the center via only one link. In the preview, we understand this central node to be the motif of the four Buddhas

(Figure 10). Additionally, all the nodes are blocks featuring the motif of four Buddhas on each of their four sides.

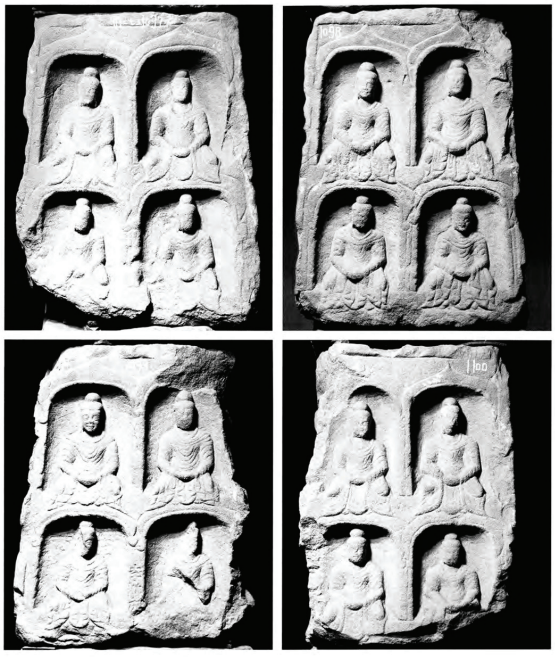


Figure 10. QN 275, Northern Wei. W. 22–33 cm; H. 40–41.5 cm. Clockwise from upper left. Source: *Nannieshui shike*, vol. 2, Figure 371.

While the network analysis method does not tell us why the image of four Buddhas as a motif became prominent, the visualization pinpoints that there are only three stone blocks not repeating the image of the four Buddhas on four sides. This idiosyncratic phenomenon leads to several questions. Why and how does the image of four Buddhas align with other motifs? Is it a phenomenon of a specific phase? Is there a chronological development of the subject? For the three idiosyncratic blocks that depict the four Buddhas motif merely on one side, what are the motifs on the other sides and in what sequence are they aligned horizontally? Answering these questions requires further examination of the stylistic traits of and the epigraphic inscriptions that have survived on the stone blocks featuring the motif of the four Buddhas.

Among the three blocks that align, the four Buddhas motif with other motifs, one is QN 256, dated precisely to 527 CE, Xiaochang 孝昌 era of Northern Wei, according to the surviving epigraph found on its one side (Figure 11). Rotating clockwise, the four sides of QN 256 feature a standing bodhisattva (side 1), two Buddhas sitting in separate niches (side 2), the four Buddhas (side 3), and a seated Buddha displaying the fearless mudra (side 4). In addition to the lengthy inscription on the lower part of side 2 revealing QN 256′s execution date, unrecognizable epigraphs are also inscribed on the edge of side 3. A comparison with other blocks suggests that the inscription probably comprises donor names. As shown in previous studies, an individual donor usually claims one side, or one niche of a block (Zhao 2021; Shanxisheng Kaogu Yanjiuyuan and Qinxian Wenwuguan 2022). The other block aligning the four Buddhas with other motifs, QN 68, features a configuration almost identical to that of QN 256. However, the stylistic traits of QN 68 suggest a later date of 550s to around 560s during the Northern Qi. Given the almost identical pictorial program on the two blocks, artisans of the later piece, QN 68, might have copied the pictorial program of QN 256.

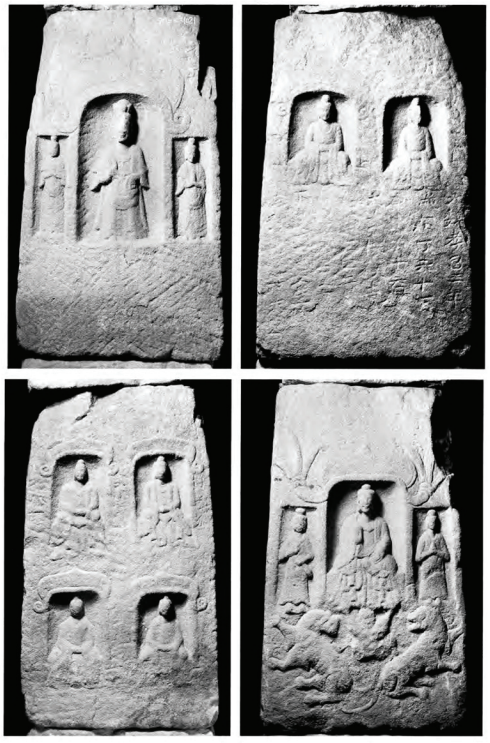


Figure 11. QN 256, Northern Wei, 527 CE. W. 29–40 cm; H. 64–66 cm. Clockwise from upper left. Source: *Nannieshui shike*, vol. 2, Figure 350.

Notably, the alignment of the four Buddhas motif with the standing bodhisattva was rarely portrayed as the main icon in southeast Shanxi during the sixth century. How can one explain this idiosyncratic pictorial program on QN 256 and QN 68? The standing bodhisattva motif was a prominent subject in statues and steles in Hebei and Shandong provinces, to the east and southeast of Nannieshui, around 540s during the Eastern Wei dynasty.[16] To understand more clearly the formation of the connection between the motif of the four Buddhas and that of the standing bodhisattva, I examined the latter's connection to other motifs in Gephi, and interesting patterns formed in several clusters (Figure 12).

The two small clusters located in the upper left show an alignment of the standing bodhisattva image with the two most frequently depicted motifs at Nannieshui, the seated Buddha displaying the fearless mudra, and the seated Buddha with a meditation mudra. Interestingly, the three blocks (QN 40, 99, and 105) in the lower cluster are all dated to Northern Qi, while the two in the upper cluster (QN 193 and 348) feature a typical Northern Wei style. Moreover, blocks in each cluster display not only identical style but also the exact same sequential order.[17] For instance, the two blocks from Northern Wei depict (clockwise) the standing bodhisattva, the Buddha with a fearless mudra, the Buddha with a meditation mudra, and the Buddha with a fearless mudra. Another cluster located to the lower right includes four blocks that share the same pictorial program, which aligns the standing Buddha, the standing bodhisattva, the Buddha with a fearless mudra, and the Buddha with a meditation mudra.

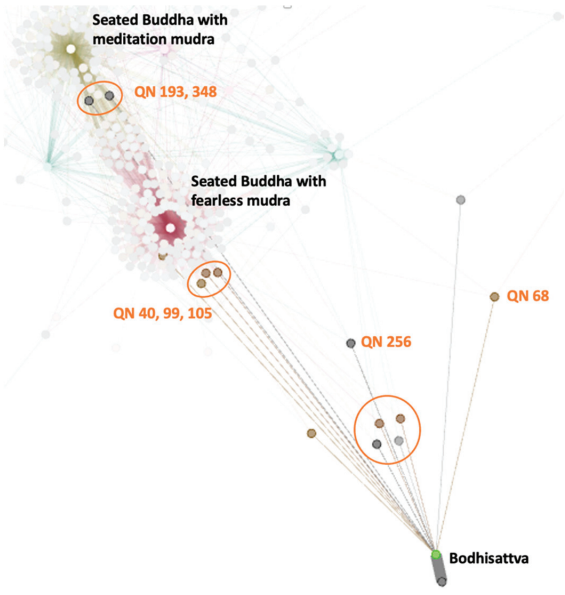


Figure 12. Alignment entered on the node of a standing bodhisattva image. Annotated.

Through the visual layout of the standing bodhisattva motif in connection to other motifs, we can see that the pictorial programs of the standing bodhisattva are relatively consistent. The only two exceptions are QN 68 and QN 256, which we have been discussing. The chronological gap between the two blocks suggests they were created as an experiment and never achieved popularity at Nannieshui.

Nevertheless, the above examination reveals the popularity of the standing bodhisattva since Northern Wei at Nannieshui, much earlier than its flourish in other parts of northern China. How did the standing bodhisattva transmit spatially and temporally in southeast Shanxi? Examining the standing bodhisattva motif in a chronological perspective, we do not find a clear shift of how the image is aligned with other motifs through the three phases. The visual result shows that nodes of the three colors denoting time periods that are found in different sections. In other words, the patterns of aligning the standing bodhisattva with other motifs did not change much over time.

Buddhist art exhibits a significant regional diversity as a result of political unrest and regional separation during the northern dynasties. Arts from the present-day Hebei and Shandong provinces in the east are explicitly similar, while Buddhist sculptures from Shanxi adhere to a different aesthetic. Nevertheless, Nannieshui is a key location for research since it is located close to the border between Shanxi and Hebei, and on the routes that connected regional political centers. Why did the standing bodhisattva flourish in the rural area of southeastern Shanxi earlier than sites in Hebei and Shandong, which are usually considered sources of influence in art since 530s? As the standing bodhisattva motif continued to flourish throughout the sixth century, how does it inform our understanding of the interaction between southeastern Shanxi and its bordering artistic hubs through the sixth century? These questions go beyond the scope of this essay, yet it serves as a good example to illustrate the potential of network analysis in the study of Buddhist pictorial programs from early medieval China. Although Nannieshui had never become a significant local center in history, its location on the path connecting several political centers in the sixth century suggests an unbalanced and a constantly shifting power play in Nannieshui (Y. Guo 1959; T. Guo 1979; Shanxi Sheng Kaogu Yanjiusuo 1994, pp. 313–18; M. Zhang 2005, pp. 51–68).

4.3. Between Pagodas and Steles: The Sequential Order of Images

As discussed above, a group of nodes appears in a regular pattern, denoting the exact same alignment of four different motifs, the twin Buddhas, the Aśoka story, the Maitreya bodhisattva, and the bodhisattva sitting in pensive position (see Figure 8). Looking into the details, it is quite intriguing since the Aśoka story and the pensive bodhisattva carry specific importance, respectively. Both motifs align with the others on blocks. However, the frequency of them being aligned with the twin Buddha and Maitreya motifs indicates a particular significance assigned to this combination. In addition, the color palette reveals that this combination only flourished during the first two periods and declined in popularity in Northern Qi.

The examination of this alignment further helps us understand the reception of the symbolic meaning of the pensive bodhisattva at Nannieshui. As shown in the lower right side of QN 90 in Figure 9, the bodhisattva sits under a tree on a high stool in a pensive pose, with one finger raised and one leg pendant while the opposite ankle rests across it, at the knee. A bodhisattva in such a pose is commonly referred to as a pensive bodhisattva (Ch. 思维 *siwei*) and frequently designated by the term *banjia* 半跏 ("*panga*" in Korean and "*hanka*" in Japanese).[18] Shown either seated independently accompanied by a kneeling horse or as half of a pair of attendants to Maitreya, the pensive bodhisattva can be ascribed to different meanings in the Buddhist pantheon. Its identity has been the subject of multiple studies, centering on the issue of whether the pensive image in China represents the Prince Siddhārtha in his first meditation, Śākyamuni before his enlightenment, or the bodhisattva Maitreya.[19]

The closest prototypes of the pensive Chinese bodhisattva are found in Buddhist art of the first to fourth centuries CE, from both Gandhāra and Mathurā in India,[20] and in fourth-century cave temples at Kizil in Central Asia.[21] In these regions, the most popular use of the pensive figure is to represent Siddhārtha during his first meditation under the jambu tree. The earliest extant Chinese representations of pensive bodhisattvas are found as flanking figures on the backscreen of a small bronze mirror that dates to the western Jin of the early fourth century. All the early and mid-fifth-century examples of pensive bodhisattvas are found in the cave temples of Gansu, paired with images of Maitreya.[22]

However, by the late fifth century in northern China, the pensive figure had started appearing separately, becoming either an independent form or appearing in a succession of narrative scenes representing the Buddha's life story.[23] In cases where the image of a pensive bodhisattva occurs independently, it occupies the entire side of a stele or a statue, or it appears in a niche, forming a pair with the main image on the other side, which is often the historical Buddha. This arrangement of the historical Buddha and the pensive bodhisattva as main images on the obverse and reverse sides of a statue elevates the importance of the latter, suggesting an emphasis on practicing the bodhisattva doctrine before attaining Buddhahood. In the following decades of the sixth century, the popularity of the pensive bodhisattvas varied according to region. Pensive bodhisattvas began to appear as main images, independently or in a pair, specifically in the Hebei region. In other areas of northern China, the bodhisattva appears more often as a subsidiary figure occupying corner positions on steles. The location of Nannieshui on the route connecting Pingcheng 平城, the previous capital of Northern Wei, with the later political and cultural center, City Ye 邺 in Hebei, demonstrates a Pingcheng origin of the preference of the pensive bodhisattva at Nannieshui.

Studying the above survey of the various forms in which the pensive bodhisattva was portrayed in fifth- and sixth-century China, we can see that the pensive figure rendered on stone blocks from Nannieshui belongs to the category of Prince Siddhārtha in his first meditation. This argument thus contributes to the interpretation of the pensive figure's stable alignment with the twin Buddhas, the Aśoka story, and Maitreya at Nannieshui, which had not been popular in other sites. This alignment stands out among other pictorial programs at Nannieshui in terms of its sequential stability in addition to its popularity. The four motifs are always arranged in the same sequential order, demonstrating a deliberate

design that imbues significance to both the artisans and the audience. These four motifs intentionally distinguish between the progression from pre-enlightenment to enlightenment and future Buddhahood, as well as the idea of the Buddhas of the three ages (past, present, and future) when viewed in the larger context of Buddhist art in early sixth-century Shanxi.

Firstly, we have the pensive bodhisattva representing the practice of meditation, which leads to the enlightenment of the historical Buddha. Then, the following motif, the twin Buddhas, is known for embodying the notion that more than one Buddha can exist simultaneously in the cosmos by joining the Buddhas of the present and the past sitting together. As a new Mahāyāna theme, the twin Buddhas motif is distinct from the early Buddhist belief that there was only one Buddha in each age. More importantly, with Prabhūtaratna as the past Buddha, the twin Buddhas motif replaces Dīpaṃkara and the seven Buddhas of the past, which represents buddhas of prior ages in the Gandhāran tradition. In Gandhāran art, the seven Buddhas and Dīpaṃkara Buddha usually designate the Buddhas of the three ages (the past, the present, and the future) theme, with the present age represented by the historical Buddha, and the future age by Maitreya (He 1992; Mizuno and Nagahiro 1951–1956, vols. 8 and 9, pp. 73–75).

Located after the twin Buddhas motif is the Aśoka story, which at Nannieshui shows the Buddha standing with his right hand touched by a child who is supported by another one (see Figure 9). The story represents the teaching that good karmic practices will lead to favorable reincarnation. In the narrative, the Buddha encounters several children playing outside during a trip. One child takes a handful of soil and climbs upon another child's shoulder to reach the Buddha's alms bowl in the hope of making offerings. The Buddha accepts the soil and predicts that the boy would be reborn as King Aśoka. The story originally belonged to the category of avadāna tales that correlates the virtuous deeds of the Buddha's past lives to subsequent lives' events. The story was translated into Chinese by An Faqin 安法欽 (active at Luoyang from 281 to 306), at the turn of the fourth century as *Ayu wang zhuan* 阿育王傳, and later by Sanghapāla 僧伽婆羅 (460–524 CE) in 512 CE as *Ayu wang jing* 阿育王經. Visually, the story already flourished in a relief around the second century CE in Gandhāra. By the late fifth century, Chinese representations of this story feature three children reaching out to a standing Buddha, emerged in Yungang cave temples.[24] The story is also carved on some of the pagoda sets discovered in eastern Gansu (B. Zhang 2000, p. 104, Figure 109; Gansusheng wenwu gongzuodui and Qingyang bei shiku wenwu baoguansuo 1987, pp. 11–15).

Lastly, we have Maitreya dressing as a bodhisattva sitting with legs crossed. Maitreya bodhisattva is said to reside in the Tuṣita Heaven until his final rebirth on earth, when he attains enlightenment and becomes the next Buddha (Wong 2004, chp. 6; Williams 2009, pp. 218–21). Maitreya scriptures were being translated into Chinese and informed of the Maitreya cult, which began to flourish in China in the fourth century. Ever since, devotion to Maitreya has continuously inspired religious and political movements for its prediction of future Buddhahood. Prior to its spread to Central Asia and China, Maitreya bodhisattva seated with crossed ankles became one of the most popular themes in Gandhāra art. Its frequent depiction at Yungang, and on fifth-century statues and steles, attests to its popularity as a devotional icon in northern China.

Therefore, the alignment of these four motifs is to be understood in the following way. The cycle starts with the pensive bodhisattva, which derives from the pre-enlightenment moment, followed by the twin Buddhas representing the past and present. The Aśoka story indicates the present as well as the future for the story's main teaching being the predicament of the future Buddhahood. The last scene ends with Maitreya, the future Buddha.

Using this alignment of motifs to represent the three ages is found particularly in the case of pictorial programs adorning surfaces of stacked pagodas (Zhao 2022). Miniature pagodas and pagoda reliefs dated to the Northern Wei period from the late fifth to the early sixth century always align the twin Buddhas motif with the seated Buddha and Maitreya and sometimes the life story of the Buddha horizontally or vertically. The importance of

sequential order of motifs in a clockwise manner strengthens the theory of pagodas being worshipped in a circumambulating way.

This examination of the alignment of the pensive bodhisattva also helps us to understand another motif popular at Nannieshui, which depicts a horse by the side of the pensive bodhisattva (node m015) (Figure 13). I assigned two different nodes to denote the motif of the pensive bodhisattva and the pensive bodhisattva accompanied by a horse for better understanding the development of these two types at Nannieshui. Indeed, in Gephi, we see distinctive networks formed, respectively, by these two types of the pensive bodhisattva. The bodhisattva with a horse is only found on three stone blocks (QN 73, 88, and 202) that align motifs differently from those that feature the typical pensive bodhisattva. Some scholars classify the motif with a horse representing the Great Departure, which refers to the narrative recounting Prince Siddhartha's leaving of the palace, an episode from the Buddha's life story. A bodhisattva sitting in a pensive pose from sixth-century Shanxi is often identified in previous scholarship as the Great Departure for the reason that a horse is depicted keeling by the foot of the bodhisattva, as the prince rides on his white horse in textual accounts. The episode highlights the historical Buddha leaving his princely life for a journey to seek enlightenment.

Figure 13. QN 88, Eastern Wei. W. 43–47 cm; H. 43–45 cm. Clockwise from upper left. Source: *Nannieshui shike*, vol. 2, Figure 104.

5. Limitation

Network analysis is confined by how researchers define the nodes and the edges that interconnect them. This ontological placement requires one to make original decisions on categorizing motifs carved on Nannieshui blocks into asserted types; therefore, the identification of each motif carries a significant impact on the result. Several motifs do not fit into the existing categories due to the provincial status of art of Nannieshui. Moreover, some motifs at Nannieshui exhibit variations in visual details, such as the decorative patterns

that are essential for stylistic study and some rarely seen elements that may be relevant to intriguing questions. These variations are not the focus of a network analysis.

Another limit as shown in this research is the lack of a diachronic computational method in its display. Rather than using a synchronic layout, I assigned different colors to distinguish stone blocks from three major periods based on their stylistic traits. This reluctance in employing a diachronic method derives from the concern to not complicate the visualization result and highlight the alignment of images.

6. Conclusions

To conclude, with Kubler's concern in *The Shape of Time*, "every trait of a thing is both a cluster of subordinate traits as well as subordinate part of another cluster." (Kubler 1962, p. 36). This study shows that a network analysis method can be an effective tool to provide a comprehensive look at different Buddhist images in connection to each other, rather than focusing on individual cases. It employs network analysis to better identify patterns of the configuration of images on each stone block from Nannieshui. These patterns are rooted in the perception of the symbolic meaning of each image or motif during the historical periods. Previous scholarship of Nannieshui stacked pagodas focused on an individual image and highlighted its popularity at Nannieshui. From a network or cluster perspective, however, the configuration of images occupies the central importance as it captures the audience's attention while they perform veneration by circumambulating clockwise around these pagodas. The network analysis reveals the awareness of the importance of aligning Buddhist motifs in a clockwise order on stone blocks used to stack pagodas at Nannieshui. This emphasis on the sequential order matches with the pictorial program that we found on other miniature pagodas from the northern dynasties, but not quite on steles. Despite their smaller scale in comparison to pagodas in the built-form, they might have been worshipped differently from ordinary steles and statues. It demonstrates the importance of the clockwise order of arranging images on pagodas and therefore helping us to better understand the perception of different types of Buddhist stone carvings in early medieval China.

This study only highlights several clusters; however, the formal approach indeed demonstrates the importance of sequential order of these images and the gradual diminishing of such an importance toward the third phase of execution. This historical development in the lack of interest in the alignment and pictorial program is echoed by recent studies of the shifted perception of pagoda, or the blurred boundary between pagoda and image during the second half of the sixth century (Zhao 2021). The reference to pagodas in surviving inscriptions on Nannieshui stacked pagodas reveals a transition from *futu* 浮圖 (pagoda) to *xiang* 像 (image). This transition related closely to the growing emphasis on individual image, which was formed by the very process of making these stacked pagodas into modules.

This article further addresses the potential of using network analysis in examining large sets of images for future research in the discipline of Buddhism and art history. This dataset of Nannieshui can be directly used in open-source SNA tools, such as Gephi, and easily exported with an emphasis on different aspects of the dataset. Researchers can quickly look up a specific image of interest and examine which other stone blocks share a similar configuration of images, styles, or sizes. Particularly, a combination of information of sizes, configuration, and style allows for the possible reconstruction of the order of how these blocks were stacked up originally. Another field that would be of potential for network analysis is the connectivity between Buddhist images and patrons; the information of whom could be extracted from the rich epigraphical sources inscribed on Buddhist stone remains. Finally, this approach could be applied in examining sites where a rich array of images, niches, or shrines are located, systematically arranged or not, and visualizing their patterns that developed chronologically, geographically, or via other variations.

Funding: This research has received no external funding.

Data Availability Statement: The data used in this study are openly available at https://github.com/nezha002/nannieshui_networkanalysis, last accessed on 30 April 2023.

Acknowledgments: I would like to express my gratitude to Harry Hong, the guest editor of this special issue, and the anonymous reviewers for their constructive and inspiring comments. The initial thoughts of using network analysis method to examine Buddhist images were developed during my participation in the workshop on "Religion and Technology" (1–8 August 2018), which was co-organized by the project "From The Ground Up: Buddhism & East Asian Religions", the Chung-hwa Institute of Buddhist Studies, and the National University of Singapore. Special thanks to the organizers, instructors, and fellow participants for their inspirations. I also extend my thanks to my colleagues and friends Clara Ma, Fan Zhang, Tim Baycroft, Lala Zuo for their feedback and suggestions to the earlier drafts of this paper.

Conflicts of Interest: The author declares no conflict of interest.

Notes

1 On an overview of the scholarship on Nannieshui sculptures. See (Zhao 2021). The pagoda is usually considered the reinterpretation of the hemispherical stūpa but features a tall, multistory, tower-like body, instead. Pagodas became the predominant form in East Asia following the eastward spread of Buddhism. Both pagodas and stūpas are generally referred to as *ta* 塔 in Chinese scholarship.

2 This is based primarily on the shape of surviving miniature stone pagodas and pagoda images in relief carvings and mural paintings, as rarely any pagodas in the built-form survive intact.

3 Pagodas in the built-form, usually of timber-wood structure, rarely survive from this period. For an overview of pagoda buildings, see (Lin 2016; Steinhardt 2011). GIS methods have been widely employed in mapping pilgrimage routes based on historical texts, Buddhist biographies, and gazetteers. For instance, Jason Protass examines the spatial pattern of the Northern Song Chan lineage by mapping out Chan sects in GIS. (Protass 2016). Wu Jiang centers on the locality of religious sects (Wu et al. 2013; Wu 2022). Peter Bol maps the distribution of religious sites based on their religious affiliations (Bol 2022). In cases studying historical figures, the location analysis method (LAM) measures the distance from their family clans to the prefectures of their political appointment, as well as their accessibility to a local devotional practice. Focusing on donors in medieval China, several studies have employed the social network analysis method to examine the interaction among individuals in literary or political circles, with a dataset made possible for designated historical periods. The network analysis method provides quantitative evidence to study historical structures and discern relevant communities. See (Bingenheimer 2018, 2020; Bingenheimer et al. 2011). Additionally, see (Vierthaler 2020) for an overview of the development of digital tools up to 2020 in East Asian studies.

4 For instance, see (Luo 2020a, 2020b; Zhang and Zuo 2018, 2021). Peking University launched an experimental teaching center for virtual reality and simulation in archaeology in 2017 where a panorama database of Chinese cultural heritage sites, mostly architecture sites, were developed. See http://www.vr-heritage.com/tour/dab88f0bfc4b6b78. Last accessed on 30 April 2023 (an accessible sample).

5 Buddhist grottoes that have been digitally documented and 3D-scanned include the Mogao Grottos in Dunhuang, Gansu province, the Yungang Grottos in Datong, Shanxi province, the Longmen Grottoes in Luoyang, Henan province, and the Dazu Grottos in Chongqing. The Center for the Art of East Asia at the University of Chicago has also completed two digital projects that record and archive the dislocated sculptures from Tianlongshan Grottoes in Taiyuan, Shanxi province, and Xiangtangshan Grottos in Handan, Hebei province. See https://tls.uchicago.edu/ and https://xts.uchicago.edu/ (last accessed on 3 April 2023). A recent example is a 3D scanning project undertaken at the Yungang Grottos in Datong, Shanxi province. See (Diao and Ning 2020).

6 The most representative case is the 3D scanning and annotation project undertaken by the National Museum of Asian Art, Washington, D.C. See https://asia.si.edu/exhibition/body-of-devotion-the-cosmic-buddha-in-3d/ (last accessed on 3 April 2023).

7 On the stage of using digital tools to study art history, see (Brown 2020). For an overview of the recent development in employing digital approaches to study Chinese Buddhist architecture, see (Luo 2020a).

8 The square central pillars featured in some Buddhist cave temples, such as the Northern Wei Caves 5 and 6 at Yungang 雲岡, Pingcheng 平城 (present-day Datong 大同), Shanxi 山西 province, employ four-sided pictorial programs similar to pagodas. This connection between central pillars and pagodas has been a topic for a number of studies. Yet, it goes beyond the scope of this paper. For reference, see (B. Su 1996).

9 This reconstruction of the vertical alignment of stone blocks at Nannieshui is debatable since the original sequence for arranging them has been lost. The current alignment as shown in the museum has not been updated since the initial installment and does not incorporate recent studies. See (Zhao 2021).

10 Once a center of Buddhism, the region is home to several cave-temple sites and numerous Buddhist statues and steles that date to the northern dynasties (Gansusheng wenwu gongzuodui and Qingyang bei shiku wenwu baoguansuo 1987; Cheng 1998; Cheng and Yang 2003; Dong 2008).

[11] On the construction of pagodas during the northern dynasties, see (*Luoyang qielan ji jiaoshi* 1963; *Shui jing zhu* 2007; Xu 1994; B. Su 2011; Steinhardt 2011, 2014). On the commission of miniature pagodas during the northern dynasties in China, see (Yin 2000; Wang 2006; X. Su 2010; Zhao 2022).

[12] On the pagoda images in reliefs and murals of Buddhist cave temples in China, see (Xiao 1989; Zhao 2021).

[13] Social network analysis has been widely used across the social and political sciences. On some examples using interdisciplinary method-borrowing of a digital approach in humanities, see (McCarty 2013; Veidlinger 2019; Clark and Lindsey 2022).

[14] Around 20 stone blocks are not included in the current study. Some underwent severe damage, leaving the images on one or more sides unidentifiable. Some feature an oxagonal shape, not fitting into the current analysis. In the spreadsheet of edges, I assign blocks as "source" while images as "target". This source–target design does not make any difference when all the nodes are processed as undirected in Gephi.

[15] All sculptures under discussion in this paper were carved from limestone and discovered at Nannieshui. It is for future comparison with sculptures from other sites to include the discovery place and material in the spreadsheet. A local quarry of limestone was found not far from the hoarding pit in the same county. (Shanxisheng Kaogu Yanjiuyuan and Qinxian Wenwuguan 2022, p. 9).

[16] The most prominent group of Hebei materials was discovered in a hoard in 1953 at Quyang, consisting of Buddhist statues dated from the 520s to the 750s. See (Y. Lee 1994; Li and Tian 1999; Li 2007). For Shandong materials, see (Nickel 2002; Wang and Wang 2002; Qingzhou shi 2014).

[17] Specifically, the standing bodhisattva carved on QN 193 and QN 348 of the Northern Wei appears with a hair style of the Buddha despite the typical bodhisattva dress.

[18] Junghee Lee has combed through the historiography on this exact topic. See (J. Lee 1993). For major studies on the subject, see (Mizuno 1940; Rei 1975; Berthier 1982; Leidy 1990; Hsu 2002).

[19] Various evidence has been provided by scholars on each side. The debate partially results from an ahistorical approach to piecemeal interpretations of inscriptions on statues from different periods of the fifth and sixth centuries. For a detailed discussion, see (J. Lee 1993; Hsu 2002). Both scholars agree that pensive figures dated prior to the mid-sixth century represent Prince Siddhārtha.

[20] For Gandhara, see (Ingholt 1957, figs. 225 and 257; Foucher 1905, vol. 1, figs. 76 and 77). For Mathura, see (Lerner 1984, pp. 30–35).

[21] *Chūgoku Sekkutsu: Kizil*, 2 vols., pls. 87 and 88. Lee, "The Origin and Development", pp. 316–17.

[22] On one of the Northern Liang *stūpas* dating to the 430s CE, the pensive figure is depicted on a horizontal register together with Maitreya and six seated Buddha figures, representing the succession of past Buddhas followed by Śākyamuni and the Maitreya of the future. The pensive bodhisattva is arranged on the lower belt with another six Buddha images and one Maitreya on a stone pagoda discovered in Jiuquan, Western Gansu province. A number of similar stone stūpas were discovered in the region and dated, by their inscriptions, to the Northern Liang period.

[23] One of the earliest surviving pensive images can be found on the back of a 471 bronze statue's backscreen. The piece was dedicated by Chou Jinu 仇寄奴 to his deceased parents. It was uncovered in Xincheng, Hebei Province. (Matsubara 1995, vol. 1, pls. 36 and 37). There are two other bronze statues that apply a very similar rendering of a pensive bodhisattva on the backscreen's reverse side. One piece, dated to 484, depicts the pensive bodhisattva on the back and a standing Avalokiteśśvara on the front. See (Matsubara 1995, pls. 74–75). The other statue with the same iconography was excavated in Pingquan, Hebei Province and dated to 489 using an inscription on its pedestal. (Matsubara 1995, pl. 86).

[24] On the Gandharan tradition, see (Strong 1983; Behrendt 2003, 2007; Branccacio and Behrendt 2006). On the Yungang tradition, see Caves 5–11, 5–38, 25, 28, 29, 33, 33–34, and 34; (Yi 2017, chps. 5 and 6). For an example, see (Yungang Shiku Wenwu Baoguansuo 1991, Figure 197). For a comprehensive study of the story's iconography, see (Li 1996; Hu 2005; Yi 2017, chp. 3).

References

Bastian, Mathieu, Sebastien Heymann, and Mathieu Jacomy. 2009. Gephi: An open source software for exploring and manipulating networks. *International AAAI Conference on Weblogs and Social Media* 3: 361–62. [CrossRef]

Behrendt, Kurt. 2003. *The Buddhist Architecture of Gandhāra*. Leiden: Brill.

Behrendt, Kurt. 2007. *The Art of Gandhara in the Metropolitan Museum of Art*. New Haven and London: Yale University Press.

Berthier, François. 1982. The Meditative Bodhisattva Image in China, Korea, and Japan. In *International Symposium on the Conservation and Restoration of Cultural Properties: Interregional Influences in East Asian Art History*. Tokyo: Tokyo National Research Institute of Cultural Properties.

Bingenheimer, Marcus. 2018. Who was 'Central' in the History of Chinese Buddhism? A Social Network Approach. *International Journal of Buddhist Thought and Culture* 28: 45–67. [CrossRef]

Bingenheimer, Marcus. 2020. On the Use of Historical Social Network Analysis in the Study of Chinese Buddhism: The Case of Dao'an, Huiyuan, and Kumārajīva. *Journal of the Japanese Association of Digital Humanities* 5: 84–131. [CrossRef]

Bingenheimer, Marcus, Jen-Jou Hung, and Simon Wiles. 2011. Social Network Visualization from TEI Data. *Literary and Linguistic Computing* 26: 271–78. [CrossRef]

Bol, Peter K. 2022. On the Spatio-Temporal Analysis of Religious Institutions: A Study of the Jinhua Prefectural Gazetteer of 1480. In *The Formation of Regional Religious Systems in Greater China*. Edited by Jiang Wu. Routledge Spatial Humanities. London: Routledge, pp. 58–70.
Branccacio, Pia, and Kurt Behrendt, eds. 2006. *Gandharan Buddhism: Archaeology, Art, Texts*. Vancouver and Toronto: UBC Press.
Brown, Kathryn, ed. 2020. *The Routledge Companion to Digital Humanities and Art History*, 1st ed. London: Routledge.
Cao, Xuexia. 2011. Nannieshui shike zaoxiang de minjian tese: Qiantan shike yishu zai qinxian de chuancheng yu fazhan 南涅水石刻造像的民間特色：淺談石刻藝術在沁縣的傳承與發展 (Features of the Nannieshui Stone Statues: On the Inheritance and Development of Stone Sculptures at County Qin). *Wenwu Shijie* 文物世界 4: 30–42.
Cheng, Xiaozhong. 1998. Zhuanglang Yunyasi shiku neirong zonglu 莊浪雲崖寺石窟內容總錄 (Zhuanglang Yunyasi Cave-Temples). *Dunhuang yanjiu* 敦煌研究 1: 41.
Cheng, Xiaozhong, and Fuxue Yang. 2003. *Zhuanglang shiku* 莊浪石窟 *(Zhuanglang Cave-temples)*. Lanzhou: Gansu wenhua chubanshe.
Clark, Emily Suzanne, and Rachel McBride Lindsey, eds. 2022. *Digital Humanities and Material Religion, An Introduction*. Berlin: De Gruyter, vol. 6.
Diao, Changyu, and Bo Ning. 2020. 3D Scanning and Digital Conservation Efforts of the Yungang Grottoes Research Academy. *Ars Orientalis* 50. Available online: https://quod.lib.umich.edu/a/ars/13441566.0050.007/--3d-scanning-and-digital-conservation-efforts-of-the-yungang?rgn=main;view=fulltext (accessed on 30 April 2023).
Dong, Guangqiang. 2008. Zhuanglang Yunyasi deng shiku de diaocha jianbao 莊浪雲崖寺等石窟的調查簡報 (Report on Zhuanglang Yunyasi Cave-Temples). *Dunhuang yanjiu* 敦煌研究 3: 44–54.
Drucker, Joanna. 2013. Is There a 'Digital' Art History? *Visual Resources* 29: 5–13. [CrossRef]
Foucher, Alfred. 1905. *L'Art Greco-bouddhique du Gandhara*. Paris: E. Lerox.
Gansusheng wenwu gongzuodui, and Qingyang bei shiku wenwu baoguansuo. 1987. *Longdong shiku* 隴東石窟 *(Eastern Gansu Cave-Temples)*. Beijing: Wenwu Chubanshe.
Gao, Meng. 2012. Tuta yu lifo 圖塔與禮佛 (Decorated Pagodas and Buddhist Worship). Ph.D. dissertation, Zhongyang meishu xueyuan 中央美術學院, Beijing, China.
Guo, Tongde. 1979. Shanxi Qinxian Nannieshui de Beiwei Shike Zaoxiang 山西沁縣南涅水的北魏石刻造像 (Northern Wei Stone Statues from Nannieshui, County of Qin, Shan-Xi). *Wenwu* 文物 3: 91–92.
Guo, Yong. 1959. Shanxi Qinxian Faxian le Yipi Shike Zaoxiang 山西沁縣發現了一批石刻造像 (A Group of Stone Statues Discovered in the County of Qin, Shanxi). *Wenwu* 文物 3: 54–55.
He, Shizhe. 1992. Guanyu Shiliuguo Beichao shiqi de sanshi Fo yu san Fo zaoxiang zhuwenti: 1 關於十六國北朝時期的三世佛與三佛造像諸問題（一） (On Buddhas of the Three Ages and images of three Buddhas during the period of the Sixteen Kingdoms and Northern Dynasties). *Dunhuang Yanjiu* 敦煌研究 4: 1–20.
Hsu, Eileen Hsiang-Ling. 2002. Visualization Meditation and the Siwei Icon in Chinese Buddhist Sculpture. *Artibus Asiae* 62: 5–32. [CrossRef]
Hu, Wenhe. 2005. Yungang shiku mouxie ticai neirong he zaoxing fengge de yuanliu tansuo 雲岡石窟某些題材內容和造型風格的源流探索 (A survey of the themes and stylistic features of stories depicted in the Yungang Grotto). In *2005 Nian Yungang Guoji Xueshu Yantaohui Lunwenji* 2005年雲岡國際學術研討會論文集 *(Proceedings for the 2005 International Conference on Yungang)*. Beijing: Wenwu Chubanshe, pp. 17–37.
Ingholt, Harold. 1957. *Gandharan Art in the Pakistan Museum*. New York: Pantheon Books.
Ishimatsu, Hinako. 2005. *Hokugi bukkyō zōzōshi no kenkyū* 北魏仏教造像史の研究 *(Northern Wei Buddhist Sculptures)*. Tōkyō: hatsubaimoto Seiunsha.
Jacomy, Mathieu, Tommaso Venturini, Sebastien Heymann, and Mathieu Bastian. 2014. ForceAtlas2, A Continuous Graph Layout Algorithm for Handy Network Visualization designed for the Gephi software. *PLoS ONE* 9: e98679. [CrossRef]
Kubler, George. 1962. *The Shape of Time: Remarks on the History of Things*. New Haven: Yale University Press.
Lee, Junghee. 1993. The Origin and Development of the Pensive Bodhisattva Images of Asia. *Artibus Asiae* 53: 311–53. [CrossRef]
Lee, Yumin. 1994. Hebei zaoqi de Fojiao zaoxiang: Shiliuguo he Beiwei shiqi 河北早期的佛教造像：十六国和北魏时期 (Early Buddhist Statues from Hebei: The Sixteen Kingdoms and Northern Qi). *Gugong xueshu jikan* 故宮學術季刊 11: 1–41.
Leidy, Denise P. 1990. The Ssu-wei Figure in Sixth-century A.D. Chinese Buddhist Sculpture. *Archives of Asian Art* 43: 21–37.
Lerner, Martin. 1984. *The Flame and the Lotus: Indian and Southeast Asian Art from The Kronos Collections*. New York: Metropolitan Museum of Art.
Li, Jingjie. 1996. Zaoxiangbei Fo bensheng benxing gushi diaoke 造像碑佛本生本行故事雕刻 (Narrative scenes from the Buddha's life story and birth stories on figured steles). *Gugong Bowuyuan Yuankan* 故宮博物院院刊 4: 66–83.
Li, Jingjie. 2007. Qingzhou fengge fojiao zaoxiang de xingcheng yu fazhan 青州風格佛教造像的形成與發展 (Development of Buddhist Statues in Qingzhou Style). *Dunhuang yanjiu* 敦煌研究 102: 6–13.
Li, Jingjie, and Jun Tian. 1999. Dingzhou xi baishi foxiang yanjiu 定州系白石佛像研究 (Study on Buddhist Stone Statues of the Dingzhou Style). *Gugong bowuyuan yuankan* 故宮博物院院刊 85: 66–84.
Lin, Wei-Cheng. 2016. Performing Center in a Vertical Rise: Multilevel Pagodas in China's Medieval Period. *Ars Orientalis* 46: 100–135. [CrossRef]
Luo, Di. 2020a. Introduction. *Ars Orientalis* 50: 1–3. Available online: https://quod.lib.umich.edu/a/ars/13441566.0050.001?view=text;rgn=main (accessed on 30 April 2023). [CrossRef]

Luo, Di. 2020b. Photogrammetry: A Digital Approach to the Study of Chinese Architecture. *Ars Orientalis* 50. Available online: https://quod.lib.umich.edu/a/ars/13441566.0050.005?view=text;rgn=main (accessed on 30 April 2023). [CrossRef]
Luoyang qielan ji jiaoshi 洛阳伽蓝记校释. 1963. (A Record of Buddhist Monasteries of Luoyang). Yang Xianzhi 楊衒之. Commented by Zhou Zumo 周祖谟. Beijing: Zhonghua shuju.
Matsubara, Saburō. 1995. *Chūgoku bukkyō chōkokushi ron* 中国仏教彫刻史論 *(Chinese Buddhist sculptures)*. 4 vols, Tokyo: Yoshikawa kōbunkan.
McCarty, Willard. 2013. Becoming Interdisciplinary. In *Proceedings of Digital Humanities*. Lincoln: University of Nebraska.
Mizuno, Seiichi. 1940. Hanka shiyui zō nit suite. *Tōyōshi kenkyu* 5: 48–53.
Mizuno, Seiichi, and Toshio Nagahiro. 1951–1956. *Unkō Sekkutsu* 雲岡石窟 *(Yungang Cave-Temples)*. 16 vols, Kyoto: Kyoto Daigaku Jimbun Kagaku Kenkyūsho.
Nickel, Lukas, ed. 2002. *Return of the Buddha: The Qingzhou Discoveries*. London: Royal Academy of Arts.
Protass, Jason. 2016. Toward a Spatial History of Chan: Lineages, Networks, and the Lamp Records. *Review of Religion and Chinese Society* 3: 164–88. [CrossRef]
Qingzhou shi, bowuguan, ed. 2014. *Qingzhou Longxingsi Fojiao zaoxiang yishu* 青州龙兴寺佛教造像艺术 *(Buddhist Art in the Longxing Temple of Qingzhou)*. Jinan: Shandong meishu chubanshe.
Qinzhou zhi 沁洲志 *(History of County Qin)*. 2003. Taiyuan: Shanxi guji chubanshe.
Rei, Sasaguchi. 1975. The Image of the Contemplating Bodhisattva in Chinese Buddhist Sculpture. Ph.D. dissertation, Harvard University, Cambridge, MA, USA.
Shanxi Sheng Kaogu Yanjiusuo 山西省考古研究所, ed. 1994. *Shanxi Kaogu Sishi Nian* 山西考古四十年 *(Forty Years of the Archaeological Research in Shanxi)*. Taiyuan: Shanxi Renmin Chubanshe.
Shanxisheng Kaogu Yanjiuyuan, and Qinxian Wenwuguan. 2022. *Nannieshui Shike* 南涅水石刻 *(Stone Carvings from Nannieshui)*. 3 vols, Beijing: Wenwu chubanshe.
Shui jing zhu 水經註 *(Commentary on the Water Classic). Li Daoyuan* 酈道元 *(~527)*. 2007. Beijing: Zhonghua shuju.
Steinhardt, Nancy S. 2011. The Sixth Century in East Asian Architecture. *Ars Orientalis* 41: 27–71.
Steinhardt, Nancy S. 2014. *Chinese Architecture in an Age of Turmoil, 200–600*. Honolulu: University of Hawai'i Press.
Strong, John S. 1983. *The Legend of King Asoka: A Study and Translation of the Aśokāvadāna*. Princeton: Princeton University Press.
Su, Bai. 1996. *Zhongguo shikusi yanjiu* 中國石窟寺研究 *(Chinese Cave-temples)*. Beijing: Wenwu chubanshe.
Su, Bai. 2011. Donghan Weijin Nanbeichao Fosi buju chutan 东汉魏晋南北朝佛寺布局初探 (A Preliminary Study on the Layout of Buddhist Temples in the Eastern Han, Wei-Jin era, and Six Dynasties). In *Weijin Nanbeichao Tangsong kaogu Wengao Jicong* 魏晉南北朝唐宋考古文稿集成 *(On Archaeology of the Wei, Jin, Northern and Southern Dynasties, Tang, and Song)*. Beijing: Wenwu Chubanshe, pp. 230–47.
Su, Xuanshu. 2010. Gudai Dongya zhuguo danceng fangta yanjiu 古代東亞諸國單層佛塔研究 (Study of the One-story Cubical *Stūpas* in East Asian). *Wenwu* 文物 11: 71–80.
Veidlinger, Daniel M., ed. 2019. Digital Humanities and Buddhism: An Introduction. In *Introductions to Digital Humanities—Religion*. Berlin: De Gruyter, vol. 1.
Vierthaler, Paul. 2020. Digital Humanities and East Asian Studies in 2020. *History Compass* 18: e12628. [CrossRef]
Wang, Jianqi, and Huaqing Wang, eds. 2002. *Qingzhou Beichao Fojiao zaoxiang*. Beijing: Beijing chubanshe.
Wang, Yuanlin. 2006. Bei Wei zhong xiao xing zaoxiang shi ta de xingzhi yu neirong 北魏中小型造像石塔的形製與內容 (The typology and content of images on Northern Wei stone pagodas of the medium and small sizes). In *2005 Nian Yungang Guoji Xueshu Yantaohui Lunwen Ji* 2005年雲岡國際學術研討會論文集研究卷. Beijing: Wenwu Chubanshe, pp. 547–73.
Williams, Paul. 2009. *Mahāyāna Buddhism: The Doctrinal Foundations*. New York: Routledge.
Wong, Dorothy. 2004. *Chinese Steles: Pre-Buddhist and Buddhist Use of a Symbolic Form*. Honolulu: University of Hawaii Press.
Wu, Jiang, Daoqin Tong, and Karl Ryavec. 2013. Spatial Analysis and GIS Modeling of Regional Religious Systems in China: Conceptualization and Initial Experiments. In *Chinese History in Geographical Perspective*. Edited by Jeff Kyong-McClain and Yongtao Du. Lanham: Lexington Books, pp. 179–96.
Wu, Jiang, ed. 2022. *The Formation of Regional Religious Systems in Greater China*. London: Routledge.
Xiao, Mo. 1989. *Dunhuang Jianzhu Yanjiu* 敦煌建築研究 *(Dunhuang Architecture)*. Beijing: Wenwu Chubanshe.
Xu, Pingfang. 1994. Zhongguo sheli taji kaoshu 中国舍利塔基考述 (On Chinese Pagoda Foundations with Relics). *Chuantong Wenhua Yu Xiandaixing* 傳統文化與現代性 4: 59–74.
Yagi, Haruo 八木春生. 2004. *Chūgoku Bukkyō bijutsu to Kan minzokuka: Hokugi jidai kōki o chūshin to shite* 中国美術と漢民族化—北魏時代後期を中心として *(Sinicization of Chinese Buddhist art in late Northern Wei)*. Kyōto: Hōzōkan.
Yi, Lidu. 2017. *Yungang: Art, History, Archaeology, Liturgy*. London and New York: Routledge.
Yin, Guangming. 2000. *Bei Liang Shita Yanjiu* 北涼石塔研究 *(On Northern Liang Stone Stūpas)*.. Xinzhu: Chueh-Feng Buddhist Art & Cultural Foundation.
Yungang Shiku Wenwu Baoguansuo, ed. 1991. *Zhongguo shiku: Yungang shiku* 中國石窟：雲岡石窟 *(Chinese Cave-temples: Yungang)*. vol. 2, Beijing: Wenwu chubanshe.
Zhang, Baoxi, ed. 2000. *Gansu fojiao shike zaoxiang* 甘肅佛教石刻造像 *(Gansu Buddhist Stone Statues)*. Lanzhou: Gansu renmin meishu chubanshe.
Zhang, Jianwei, and Lala Zuo. 2018. Kaihuasia: Buddhist Art and Architecture in Virtual Reality. *IIAS Newsletter* 79: 19.

Zhang, Jianwei, and Lala Zuo. 2021. VR-Heritage: Chinese Cultural Heritage in the Digital Age. *Ars Orientalis* 50. Available online: https://quod.lib.umich.edu/a/ars/13441566.0050.004?view=text;rgn=main (accessed on 30 April 2023).
Zhao, Jinchao. 2021. Generating Sacred Space beyond Architecture: Miniature Pagodas in Early Medieval China. *Religions* 9: 1–31.
Zhao, Jinchao. 2022. Reconfiguring the Buddha's Realm: Pictorial Programs on Fifth-century Chinese Miniature Pagodas. In *Tradition, Transmission, and Transformation: Perspectives on East Asian Buddhist Art*. Edited by Dorothy C. Wong. Wilmington: Vernon Press, pp. 3–40.
Zhang, Mingyuan. 2005. *Shanxi Shike Zaoxiang Yishu Jicui* 山西石刻造像藝術集萃 *(Selected Stone Sculptures from Shanxi)*. Taiyuan: Shanxi Kexue Jishu Chubanshe.

religions

MDPI

Article

The Making of a Sacred Landscape: Visualizing Hangzhou Buddhist Culture via Geoparsing a Local Gazetteer the *Xianchun Lin'an zhi* 咸淳臨安志

Jeffrey Liu * and Ziling Wan *

Department of East Asian Studies, The University of Arizona, Tucson, AZ 85719, USA
* Correspondence: liuwei0159@arizona.edu (J.L.); ineswan@arizona.edu (Z.W.)

Abstract: This project uses local sources to visualize and analyze the spatial distribution of Buddhist sites in Hangzhou 杭州, China, in the Southern Song dynasty (1127–1279). It aims to highlight regional religious features in Hangzhou as a locality—the interactions between Buddhism and sociocultural factors—from the visualization and analyses. With the advent of the spatial turn in the field of humanities, numerous endeavors have been undertaken to collect data from religious sites in East Asia. However, the collections are aimed at a nationwide-level scale rather than targeted at regional aspects. Studying religion by using the data of large-scale areas often prevents us from observing regional characteristics such as how religion interacted with local factors. Hence, this project draws spatial data from a Hangzhou local gazetteer titled the *Xianchun Lin'an zhi* 咸淳臨安志 (*Records about Lin'an from the Xianchun Reign*, a 100-fascicle local chronicle that depicted the Lin'an Prefecture in the Southern Song dynasty) to create a visualization for all Buddhist establishments in Hangzhou. We observe how a religious landscape within a locality is portrayed when it was renowned as a political, cultural, and economic center at a given time. Starting as a project led by him in 2020, Jiang Wu's team converted all Buddhist temple locations recorded in the *Xianchun Lin'an zhi* into geographical coordinates. Based on the dataset, we analyze the distribution of Buddhist temples with the application of GIS via three methods: average nearest neighbor, quadrat analysis, and kernel density to highlight localism and regionalism in Chinese religious studies. Our results of GIS distant reading indicate a highly clustered congregation of Buddhist temples in Hangzhou. Corroborating the results of distant reading with factual information (recorded in historical materials) from close reading, we discover that the spatial pattern of Buddhist temples is correlated with socio-political factors including *fengshui*, state power, politics, and commercial exchanges. With the combination of distant reading and close reading, we can highlight the interactions between Buddhism and socio-political factors that are not easily spotted via traditional textual approaches or using data that is scaled nationwide.

Keywords: Buddhist temple; Hangzhou; GIS; visualization; religion; Spatial Humanities; Regional Religious System; local gazetteer

Citation: Liu, Jeffrey, and Ziling Wan. 2022. The Making of a Sacred Landscape: Visualizing Hangzhou Buddhist Culture via Geoparsing a Local Gazetteer the *Xianchun Lin'an zhi* 咸淳臨安志. *Religions* 13: 711. https://doi.org/10.3390/rel13080711

Academic Editor: Z. George Hong

Received: 23 April 2022
Accepted: 25 July 2022
Published: 3 August 2022

Publisher's Note: MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.

1. Introduction

Hangzhou 杭州, located in southeast China (approximately 120 km southwest of Shanghai 上海), a cultural center of the Jiangnan 江南 region, was the former imperial capital (previously known as Lin'an Fu 臨安府, Lin'an Prefecture) in the Southern Song dynasty (1127–1279). It was also one of the most prominent pilgrimage destinations for the Buddhist and Daoist communities, and home to a robust popular religion. Hangzhou, as pointed out by Albert Welter, is the center for reimagining East Asian Buddhism—in that Indian Buddhism was translocated to Hangzhou and manifested in various ways. It was then recognized as a new homeland for Buddhism (Welter 2022). In the Song dynasty, when Hangzhou was one of China's largest international trading hubs, the trading

network successfully spread Buddhism. Buddhist establishments can reflect this highly esteemed status of Buddhism in Hangzhou—since those establishments delineate the cultural landscape within a locality. Moreover, Buddhist sites are highly dependent on sociocultural phenomena that are capable of telling us much about society.

With the advent of the spatial turn in the field of humanities, numerous endeavors have been undertaken to collect data from religious sites in East Asia. The projects include the Buddhist Geographical Information System Project (BGIS, The University of Arizona), Atlas of Religion in China (ECAI, Berkeley), China Historical Geographic Information System (CHGIS, Harvard University), Buddhist Temples in Taiwan (Academia Sinica, Taiwan), Chinese Civilization in Time and Space (Academia Sinica, Taiwan), Buddhist Studies Authority Database Project (Dharma Drum Buddhist College, Taiwan), and Spatial Religion Information Network (Purdue University). Data collected in these repositories provides us with great potential to conduct further analysis on the sociocultural aspects of religion.

Although the data collected in these projects offers much insight, the collections are aimed at a nationwide-level scale rather than targeted at regional aspects. Studying religion by using the data of large-scale areas often prevents us from observing regional characteristics, such as how religion interacted with local factors—including but not limited to imperial and local powers, commercial activities, urbanization, etc. These regional features can be best investigated in Hangzhou, for it is a political, economic, and religious epicenter in the Southern Song dynasty (it earned the appellation of *dongnan foguo* 東南佛國, which means a southeastern Buddha land). Hangzhou, as stated by Jacques Gernet (1921–2018), was considered the richest and the most populated city in the world during this time period. (Gernet 1962). This project uses the spatial data of Buddhist temples, drawn by Wu's team from a Hangzhou local gazetteer titled the *Xianchun Lin'an zhi* 咸淳臨安志 (*Records about Lin'an from the Xianchun Reign*)—a 100-fascicle local chronicle that depicted the Lin'an Prefecture in the Southern Song dynasty, to create a visualization and conduct synchronic spatial analysis for all Buddhist establishments in the Southern Song. Our visualization and interpretation expect that we can observe how a religious landscape is portrayed when a given region was renowned as a political, cultural, and economic center at a given time—Hangzhou in the Southern Song in this case. Furthermore, by adapting GIS analysis to the temple distributions and corroborating the results with factual information (recorded in historical materials), including imperial power, urbanization, and commercial exchanges, we can highlight the interactions between Buddhism and sociopolitical factors that are not easily spotted via traditional textual approaches or using data that is scaled nationwide.

2. A Regional Approach to Religion

How should we proceed when investigating religion within a locality? Or perhaps a more important question, why should we focus on the aspect of religion at a regional rather than national level? As pointed out by Jiang Wu, the study of religious sites can be approached from the following three methodological perspectives: (1) a religious understanding of sacred space, (2) the geographical study of religion, and (3) a postmodern interpretation of social space (Wu 2022). The common ground between the methods is regionalism in the study of religion—all of them address the notion of space, a delimited space dependent on the data being chosen. For instance, the *Xianchun Lin'an zhi* axiomatically limits its regional boundaries within the Southern Song dynasty Lin'an (present-day Hangzhou) region. These boundaries confine the scope of the study within a locality (and a specific time frame) without significant digression. This regional approach is promoted by the Huanan School 華南學派 led by David Faure and Zheng Zhenman 鄭振滿, who believe that we should not acknowledge a region as a portion of a larger-scaled area and discuss its dynamics. Instead, a region should be examined as a whole to achieve a comprehensive understanding.

Wu claimed that this regional approach fuels the method of microhistory in Chinese regional studies, as it has the potential to reconstruct our understanding of historical and religious developments within a locality (Wu and Wang 2021). Many scholars with their expertise in Chinese studies have advocated the approach of regionality from different perspectives. For William Rowe, a region means more than a zone with specific features within a larger state, but a locality system that should be studied on its own (Rowe 1993). In Naito Konan's 內藤湖南 (1866–1934) theory of the Tang–Song Transition 唐宋變革論, he pointed out that the advent of early modernity in China was fueled by social-intellectual changes that are better observed within a region (Fogel 2003). For social linguists such as Willem Grootaers and Ray Iwata, dividing the whole study area into smaller grids or units is best for defining regional characteristics. (Grootaers et al. 1995; Iwata 2010).

Studying religious sites within a region is beneficial for investigating the complex dynamics between religion and the local community (commercial exchanges, urbanization, or state power vs. local power) because religious sites are one of the elements that construct the sociocultural landscape in China. As suggested by the religious theorist and anthropologist E. E. Evans-Pritchard (1902–1973), "They [religious facts] must be seen as a relation of parts to one another within a coherent system, each part making sense only in relation to the others, and the system itself making sense only in relation to other institutional systems, as part of a wider set of relations...." (Pals 2009). Religious facts become meaningful only if they are accounted for in light of the totality of the culture and society in which they are found.

To exemplify religion in line with a regional coherent system, on the relation of religion with the administrative system, for instance, Albert Welter visualized the distribution of Buddhist stupas constructed by emperors of the Wuyue kingdom (907–978) within Hangzhou religion. He pointed out that this endeavor indicates the regime's ambition to establish power and religious legitimacy in a region, hence forming a spatial pattern that is unique to this particular area (Welter 2022). Moreover, on the relation between religion and the local socioeconomic system, Zhang Weiran mapped out the spatial structure of Guanyin pilgrimages in the Yangtze Delta. He discovered the spatial pattern of religious activities is related to economic nodes in local areas—pilgrimage activities brought about commercial exchanges such as trading in markets along the pilgrimage routes (Zhang 2022). It thus indicates that religious institutions in China depend much on the local economy. The information on pilgrimage routes and trading markets is drawn by Zhang from a variety of historical sources, not only including poems, prose, newspapers, records, and novels; but mostly from local temple and official gazetteers, which indicates how resourceful gazetteers are when studying religion from a regional perspective.

3. Geoparsing Source of This Study, the *Xianchun Lin'an zhi* and Some References

One of the most inclusive sources of regional historiography is the genre of gazetteers, especially local gazetteers. Gazetteers (including officially commissioned, local, and private ones) are cumulative records within a locality, usually published in a book format, and arranged by topics such as topography, institutions, religion, population, taxes, economic exchanges, biographies, and literature (Dennis 2015). The spectrum of gazetteer content is vast—it can be based on provinces, prefectures, counties, villages, temples, mountains, schools, and prominent figures. In terms of religion, gazetteers often dedicate sections that provide detailed descriptions focusing on religious venues, including temples, shrines, mountains, caves, etc., recorded in an entry-by-entry format similar to what a dictionary presents. The religious venues are usually named establishments, and gazetteers would tell us their names, date of establishment, location information, and some other peripheral information that the compiler felt necessary to record.

The primary source of the spatial data of Buddhist temples in this study is the *Xianchun Lin'an zhi*, a local gazetteer of the Lin'an prefecture 臨安府 (Hangzhou, Zhejiang), which was the capital of the Southern Song dynasty (1127–1279 AC). It is a government-published gazetteer, compiled and supervised by a *zhifu* 知府 (Lin'an prefect) Qian Shuoyou 潛說友

(1216–1277 AC). The *Xianchun Lin'an zhi* and the two older gazetteers of the Song-dynasty Lin'an—the *Qiandao linanzhi* 乾道臨安志 (Records about Lin'an from the Qiandao Reign, 1165–1173) and the *Chunyou linanzhi* 淳祐臨安志 (Records about Lin'an from the Chunyou Reign, 1241–1252)—are the earliest existing local gazetteers of Hangzhou. Among the three Lin'an gazetteers from the Song period, the *Xianchun Lin'an zhi* is the best in quality and preservation (Lin 1990). Qian compiled a 100-fascicle-long *Xianchun Lin'an zhi* (95 fascicles extant), an updated and expanded version based on the older two Lin'an gazetteers. The first 15 fascicles recorded the capital city and the seat of the imperial government, and the remaining fascicles (fascicles 16–100) documented the surroundings of the capital city, with detailed information on topography, literary works, customs, local products, eminent persons, temples, and shrines. The *Xianchun Lin'an zhi* is a rich source for studying the history of Hangzhou, and it inspired later texts such as the *Mengliang lu* 夢粱錄, where the author of the *Mengliang lu* referenced more than half of the contents of the latter from the former (Zeng 2012). Fascicles 76–85 of the *Xianchun Lin'an zhi*, dedicated to the entries of Buddhist temples located within the Lin'an prefecture, are the primary sources for geoparsing.

The geoparsing project was led by Jiang Wu in 2020, his team[1] (including the two authors of this article) extracted the information of temple name, historical location, construction date, description, and geographical region into a spreadsheet. They converted all historical locations of Buddhist temples to modern coordinates by consulting more than 60 historical and contemporary sources. Historical sources include local gazetteers, miscellaneous notes, anthologies, and biographies. Contemporary sources include academic publications, maps, dictionaries, contemporary gazetteers, academic research databases, and governmental websites.

4. GIS Results with Distant Reading

However, while historical sources such as gazetteers give us a great deal of information about religious sites, they do not offer a comprehensive overview of all sites. With the application of GIS, we can examine more clearly how religion is portrayed in a locality within a sociocultural context by distant reading. GIS tools and analytical approaches are beneficial to visualize the geographical elements of religious establishments that cannot be seen through reading texts—they enable us with new mapping techniques to religious texts that were not possible, or too laborious to be practical (Protass 2016). One of the major advantages of GIS approaches in this regard is the freedom to manipulate datasets to generate very specific results catered just for the researcher. For instance, if we performed a spatial query in ArcGIS Pro, we could answer questions such as "which county/counties in Hangzhou have/has more Chan temples than Pure Land temples?" or "are the temples built within 500 m of the Grand Canal established earlier than the ones that are not?" More evidential work is needed to make conclusions to those hypothetical questions, but it gives us opportunities to explore beyond the texts.

Recently, scholars are taking advantage of GIS distant readings to generate new questions and results. For example, Peter Bol stated that while gazetteers did inform readers of a clear description of religious sites, they seldom include records that directly pertain to the personnel involved in religious activities. In Bol's study, he categorized religious sites by sorting them through construction dates and religious affiliations provided in gazetteers and utilized GIS analysis to map the distributions of the sites. He attempts to explore how those visualizations can bring about new kinds of analyses—including urbanization, state control of religion, lay patronage, and commercialization—that may not be apparent by reading the gazetteer entries about religious sites (Bol 2022).

Marcus Bingenheimer discovered a pattern of pilgrimage routes that are not easily observed from reading local sources. In his study, Bingenheimer georeferenced more than one thousand pilgrimage waypoints in a local record and visually conceptualized that the Chinese Buddhist pilgrimage is a network of routes. On the north side of the network is an enclosed quadrilateral that he coined as a "pilgrimage square"—a term not mentioned

and not recognizable from reading the source. Such patterns are constructed via overlaying multiple routes in ArcGIS Pro, and the patterns were discussed by Bingenheimer from literary, historical, political, and commercial perspectives. (Bingenheimer 2022).

Observing the spatial patterns of Buddhist establishments, this article aims to investigate Buddhism as a phenomenon in the Southern Song dynasty and how it expanded its influence into many aspects of sociocultural settings. For this study, all our data are confined within the study area of what is now Hangzhou, with some additional layers including the administrative border of Hangzhou in the Southern Song dynasty that demarcates all counties in Hangzhou, and the city walls surrounding the city that encloses the Hangzhou Prefecture, both of which are in an enclosed polygon format.[2]

We collected 505 Buddhist temple entries (495 temples and 10 stupas/steles)[3] that were recorded in the *Xianchun Lin'an zhi*. We distinguish each temple entry in our source into six different segments—location of the temple, time and people involved in the construction, miscellaneous information pertaining to the temple, scenic depiction either of the temple or its surroundings, literature written for the temple, usually by famous literati, and amalgamation records of Buddhist temples. A paradigmatic entry can be deconstructed into the following:

Buddhist temple name (Temple X):

1. Temple X is located at [location];
2. It was constructed in [time or location, sometimes both], by [person name];
3. Temple X was/had [previous renovations, underwent disasters, imperial visits, a center for rituals, famous for pilgrimages, known for certain products, received awards and accolades . . . etc.];
4. The scenery around is [either describes the temple or its surroundings];
5. [Person name] wrote one/multiple piece(s) of literature for Temple X, [literature content];
6. During [a time period or an emperor's reign], this temple amalgamated [other temple names and/or location].

Segments (1) and (2) are the main attributes—location and time—that we use for visualizing Buddhist temples since they are pure numeric data, the most straightforward for quantitative analysis. Figure 1 below is the visualization of all Buddhist temples recorded in the *Xianchun Lin'an zhi* as follows:

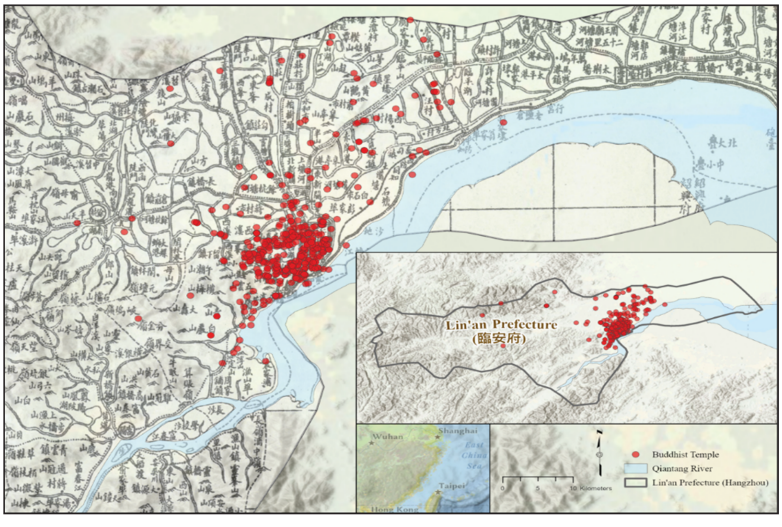


Figure 1. Record of Buddhist temple distribution in the *Xianchun Lin'an zhi* 咸淳臨安志 (*Records about Lin'an from the Xianchun Reign*).

The base map of choice in Figure 1 (and the remaining figures with base maps) is the Qing-dynasty Hangzhou prefecture map (*Hangzhoufushu quantu* 杭州府屬全圖) in the *Historical Atlas of Hangzhou* (*Hangzhou gujiu dituji* 杭州古舊地圖集), published by the Hangzhou Archives Bureau 杭州市檔案館 in 2006. It was georeferenced by the authors in ArcGIS Pro with a second order polynomial by adding 63 control points.

The following two trends can be observed from the map: (1) Buddhist temples in the study area are unevenly distributed, and (2) there is a noticeable cluster in the bottom right corner of the study area. However, the scale of the map is too large for us to define the degree of its spatial distribution—we do know that, from its appearance, the data seems to be clustered, but to what degree? More importantly, where are those temples clustered? Hence, we need to perform a series of quantitative analyses to identify the data on a smaller scale in a logical order as follows: (1) Average Nearest Neighbor (ANN) analysis that testifies to the tendency of data distribution, ruling out the possibility of a random distribution, (2) quadrat analysis for studying the spatial arrangements of the point locations, and (3) kernel density to find out where precisely the points are located.

4.1. Average Nearest Neighbor (ANN)

The ANN analysis can determine whether the data is dispersed, clustered, or distributed randomly by calculating the average distance between all data and their nearest data points to determine the degree of distribution. Its formula is shown as $ANN = \frac{Do}{De}$ while $Do = \frac{\sum_{i=1}^{n} di}{n}$ and $De = \frac{0.5}{\sqrt{\frac{n}{A}}}$. In the formulas above, Do is the observed average distance and De is the expected average distance for a hypothetical randomized distribution. Di is the distance in between the data point i and its nearest points, n is the number of all points within this dataset, and A is the study area that encloses all the temple points. The result of the ANN analysis generates a graph to indicate the distribution as in Figure 2 below as follows:

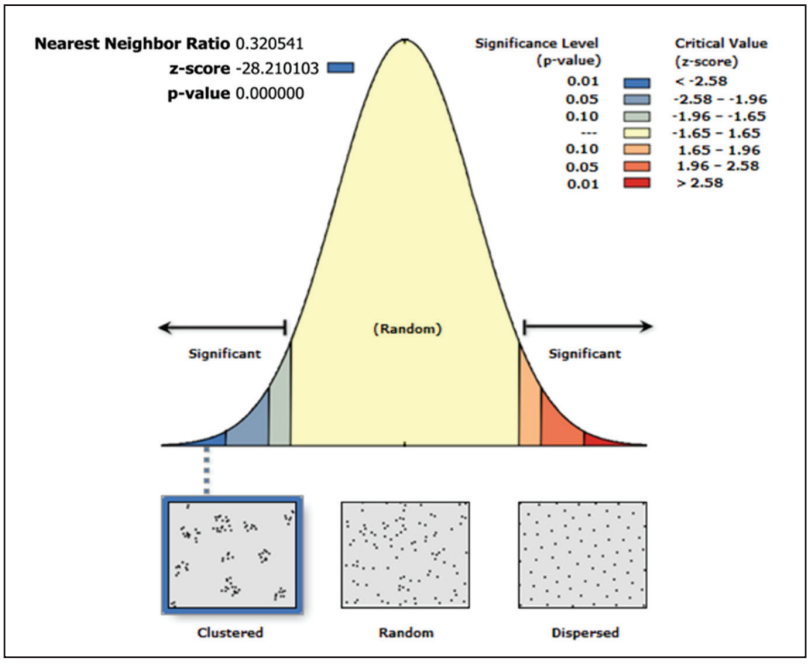


Figure 2. ANN analysis of Buddhist temple distribution recorded in the *Xianchun Lin'an zhi* 咸淳臨安志 (*Records about Lin'an from the Xianchun Reign*).

From the extremely low z-score and *p*-value, we can see that there is less than a 1% chance that the distribution is random. Hence, we can claim that Buddhist temples are very clustered in our study area. However, this result only tells us about the tendency of the clustered data points, but not how and where the points are clustered.

4.2. Quadrat Analysis

Given the results from ANN indicating clustered points, we can determine how the data points are arranged in the study area in a two-step process. First, we superimpose a fishnet constructed of rectangular cells (59 square kilometers per cell) onto the study area and calculate the number of points in every cell. This superimposed fishnet can also tell us how the points are arranged in the study area; see Figure 3 below:

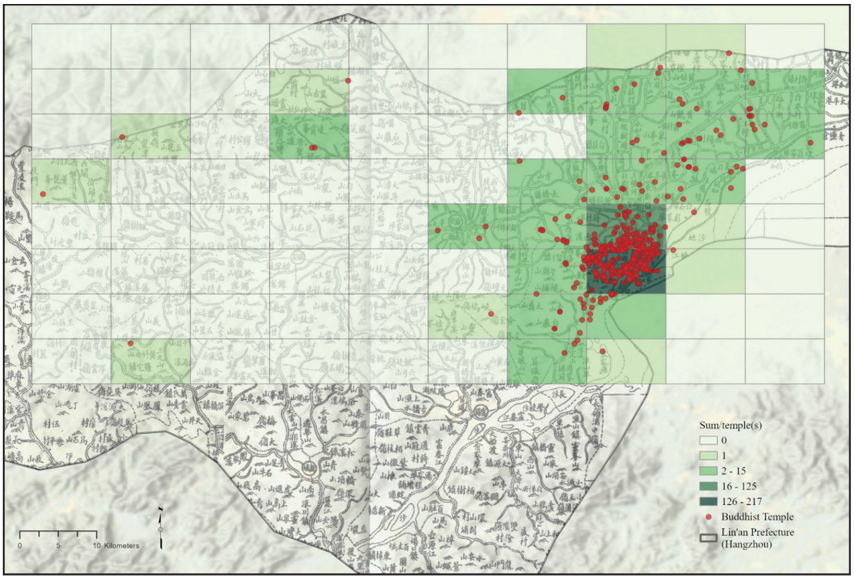


Figure 3. Quadrat analysis (59 square kilometers per cell) of Buddhist temple distribution recorded in the *Xianchun Lin'an zhi* 咸淳臨安志 (*Records about Lin'an from the Xianchun Reign*).

Building upon the results from ANN that the data points are clustered, we can see that the temples are clustered within the darkest cells from the image above. Second, we calculate the frequency of points in all cells. This frequency value, VMR (variance-mean ratio), represents the variability of data points in cells in terms of the observed frequency and the mean frequency. Then, we calculate the pattern of data distribution based on the numbers in each cell.

From Table 1, we can see that 338 Buddhist temples (72.1% of the total number) inhabit the top-three populated cells within the study area. They are heavily clustered in only three cells out of one hundred cells—within 3.33% of the landmass in our study area lies 72.1% of Buddhist temples. Coincidentally, 72% of the cells are empty without Buddhist temples. The results indicate a significantly uneven distribution but without a clear indicator of the exact locations.

Table 1. The variance of the Buddhist temple data point.

Total Number of Temples in Study Area: n				469
Total Number of Quadrats in Study Area: x				80
Mean Quadrat Count: $\mu = n/x$				5.8625
Number of Temples, K	Number of Quadrats, X	$K - \mu$	$(K - \mu)^2$	$X(K - \mu)^2$
0	51	−5.863	34.369	1752.814
1	10	−4.863	23.644	236.439
2	2	−3.863	14.919	29.838
3	5	−2.863	8.194	40.97
4	1	−1.863	3.469	3.469
7	2	1.138	1.294	2.588
9	1	3.138	9.844	9.844
10	1	4.138	17.119	17.119
11	1	5.138	26.394	26.394
12	2	6.138	37.669	75.338
13	1	7.138	50.944	50.944
14	1	8.138	66.219	66.219
124	1	118.138	13,956.47	13,956.47
217	1	211.138	44,579.04	44,579.04
Total				60,847.49
Observed Variance, $s^2 = \frac{\sum X(K - \mu)^2}{(x-1)}$				770.221
Variance Mean Ratio, $VMR = s^2/\mu$				131.381
Pattern (clustered, random, dispersed)				VMR > 1, clustered

4.3. Kernel Density

We have narrowed the scale to three cells with the highest frequency of temples, but the clustered locations remain unclear. The result of kernel density for Buddhist temples is represented by kernels with a cell size of 0.0001 square kilometers and the search radius is left blank. It is to this analytical approach of kernel density that we can add a feature (as shown in Figure 4 below) for further clarification—city walls. The Lin'an city walls of the Southern Song were reconstructed based on the groundwork of the city walls built in the Wuyue kingdom period for military purposes. The Southern Song city walls were pulled inwards on the northwestern and southwest sides; the total area that was enclosed shrank and became smaller than the Wuyue city walls. The Lin'an city walls in the Southern Song did not have a large-scale expansion compared with the past. The Lin'an city walls only expanded once at the southeastern corner in the early times of the Southern Song, for the convenient commute of imperial officials to enter the palace.

There are the following five noticeable hot zones (marked with blue numbers) on this map with higher temple density: (1) the middle-left spot located at Mt. Tianzhu 天竺山, (2) the bottom left spot at Mt. Yuhuang 玉皇山, (3) the upper left spot at Yuhang Gate 餘杭門 (present-day Wulin Gate 武林門), (4) a meridional path-like zone connecting Mt. Yuhuang and Yuhang Gate, and (5) the center east area on the edge of the city wall. However, acknowledging the clustered zones is not enough to construct a narrative that fulfills the thesis of this article—to view religion at a regional scale and observe its interactions. To achieve this goal, we will now turn to the interpretation of those digitized mapping results via corroborating with historical materials in the upcoming section.

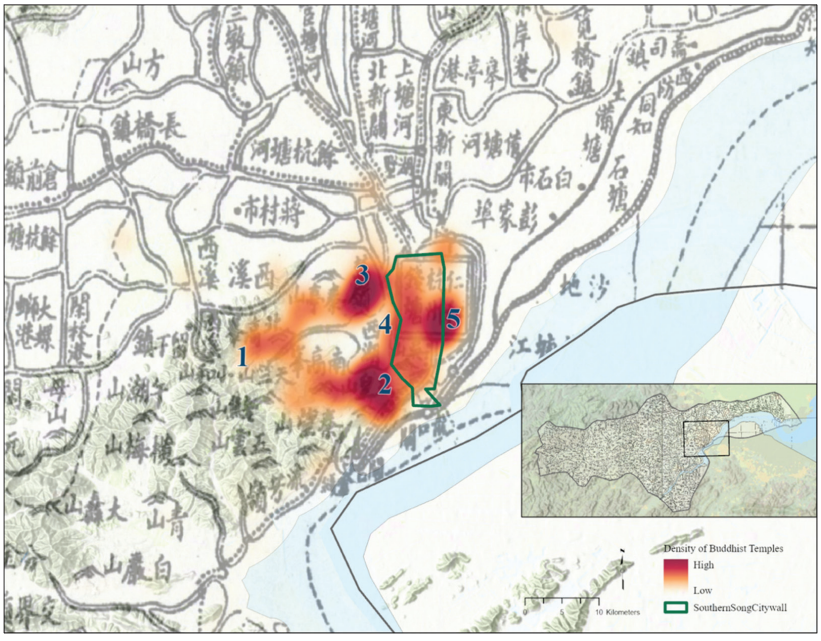


Figure 4. Kernel density of Buddhist temple distribution recorded in the *Xianchun Lin'an zhi* 咸淳臨安志 (*Records about Lin'an from the Xianchun Reign*).

5. Interpretation via Close Reading

As mentioned previously, GIS approaches provide the opportunity to use distance reading in studying Chinese religious texts. The advantage of employing distant reading is being able to discover whatever patterns are already present in texts but cannot be observed by close reading, a traditional textual approach. Distant reading is assisted with GIS in processing a large quantity of texts and further mapping the texts out. This term was proposed by Franco Moretti as a counterpart of close reading, where he intended to argue against the "narrow" pursuits of area studies and national literatures and to renew the study of world literature (Moretti 2013). Later, scholars employed distant reading to discuss the application of GIS and received beneficial results.

However, the results from GIS distant reading often lack the evidential interpretation gained from close readings. We need to corroborate the results with religion-related facts recorded in historical sources, which provide a new insight into socioreligious manifestation within a locality. For example, Jason Protass examines how religious lineage changed over time in China by studying the spatial pattern of the Northern Song Chan lineage recorded in *Lamp Records*. He mapped out the five Chan sects and corroborated the pattern with textual records (Protass 2016).

5.1. Explanation of Distribution

5.1.1. *Fengshui* 風水

From our results, three of the five zones of the distribution of Buddhist temples—Zones 1, 2, and 3—were built surrounding the West Lake. The seclusion and the tranquil atmosphere attracted monks and practitioners to conduct Buddhist practices, a description of the Yunqi Temple 雲棲寺 coincides with this statement, "[The temple] . . . being separated from the urban activities . . . the enclosing mountain and riverine system . . . is the perfect and only place for a person with the Way (*youdaozhe* 有道者) to stay at." (Wu 1780). Apart from the scenic views, the *fengshui* tradition is an important reason for its distribution. The

temples that are situated with the mountains at the back and overlooking the river are ideal for accumulating "*qi* 氣," and thus are in good *fengshui* conditions.

Take Zone 1 for example, the mountainous and riverine landscape surrounding Mt. Tianzhu 天竺山 makes it ideal for constructing Buddhist temples with good *fengshui*, such as the Lingyin Temple 靈隱寺, the three Tianzhu temples 三天竺寺, and the Gaoli Temple 高麗寺. A passage from the *Gazetteer of the Lingyin Temple* 靈隱寺志 recorded as follows:

> "for ancient saints who practice the Buddha's teachings, it was always the case for them to leave the urban areas and dwell in the mountains and woods. Such a place serves best for 'venue of the Way (*daochang* 道場).' A venue of the Way is a place for practitioners to concentrate; it is not to mix with the profane! Hence, ancient temples must be located at famous mountains, so that practitioners can absorb the '*qi* 氣' from the mountain and the water." (Sun and Xu 1888)

In Zone 2, the stele erected at the Hupao Temple 虎跑寺 also stated that "the surrounding mountain and river are filled with auspicious aura (*lingqi* 靈氣), and the Hupao Spring is the best location to construct a temple." (Wu 1780). Hence, since Hangzhou is naturally endowed with mountain and river landscapes, it is not surprising that a cluster of Buddhist temples is located here.

The fame of the temples around the West Lake also attracted travelers for pilgrimage and sightseeing fueled the tourism industry—in Zhou Mi's 周密 (1232–1298) *Old Affairs of the Martial Grove* (*Wulin jiushi* 武林舊事), a comprehensive record of Hangzhou in the Southern Song, had a chapter specifically titled "Spectacular Scenes of Lakes and Mountains (*hushan shenggai* 湖山勝概)" to record religious sites as popular tourist sites. In Xiaolin Duan's *The Rise of West Lake: A Cultural Landmark in the Song Dynasty*, she calculated the percentage of religious sites amongst all the sightseeing routes recorded in the *Wulin Jiushi* and discovered that the routes of three Tianzhu temples, Southern Mountain 南山, and Ge Hill 葛嶺 (Zone 1, Zone 2, and Zone 3 respectively) are the most popular (Duan 2020). Moreover, the high temple density in Zone 5 made it popular amongst pilgrimage travelers in future dynasties. For instance, the Zhenhai Chan Temple 鎮海禪院 (also known as the Haichao Temple 海潮寺), was a major hub for pilgrimage in the Ming dynasty—it served as a facility filled with pilgrimage-related services for travelers, and it also received government support to promote Buddhism. (Zhang 2022) Hangzhou was one of the waypoints for the Guanyin pilgrimage at Mt. Putuo, and it received travelers from multiple directions as follows: north from Huzhou 湖州, northeast from Jiaxing 嘉興 and Suzhou 蘇州 (also from the Grand Canal), and southeast from Ningbo 寧波. Although the distribution of Buddhist temples around the West Lake was not solely influenced by pilgrimage and tourism, the temples directly resulted in the rise of pilgrimage and excursion that showcases the interaction between religion and leisure activities.

5.1.2. State Power

Besides the *fengshui* tradition, the hot zones are also a manifestation of state power in the form of religion, especially from the Wuyue kings' ambitions to transform Hangzhou into a Buddha land. We mapped out the distribution of the Buddhist temples that were constructed by the Wuyue kings, as shown in Figure 5 below. This piece of information was extracted from the temple description in the *Xianchun Lin'an zhi* (fascicles 76–85). We then performed a spatial query via ArcGIS Pro to identify which temples were constructed by the Wuyue kings. We can clearly see from the map that the temples built by Wuyue are mostly situated around the hot zones (apart from Zone 1).

Ever since the Wuyue kingdom, the Hangzhou region has undergone an initiation of transformation into a Buddhist sacred space. The Wuyue kings endeavored to define their Buddhist regime through "expansion and promotion of the Buddhist clergy, printing and publication of Buddhist texts, production of Buddhist images and sculptures, and, above all, the building of monasteries, temples, and pagodas." (Welter 2022) Buddhist temples and stupas were erected to serve as markers to represent the rulers' power, illicit harmony, and translocate Buddhism from its Indian roots into China. For example, the

Jingci Temple 淨慈寺 in Zone 2 was constructed by the Wuyue king Qian Hongshu 錢弘俶 (929–988) for the famous monk Yongming Yanshou 永明延壽 (904–975), which then became prominent within the Five Mountain and Ten Monastery (*wushan shicha* 五山十刹) system in the Southern Song.

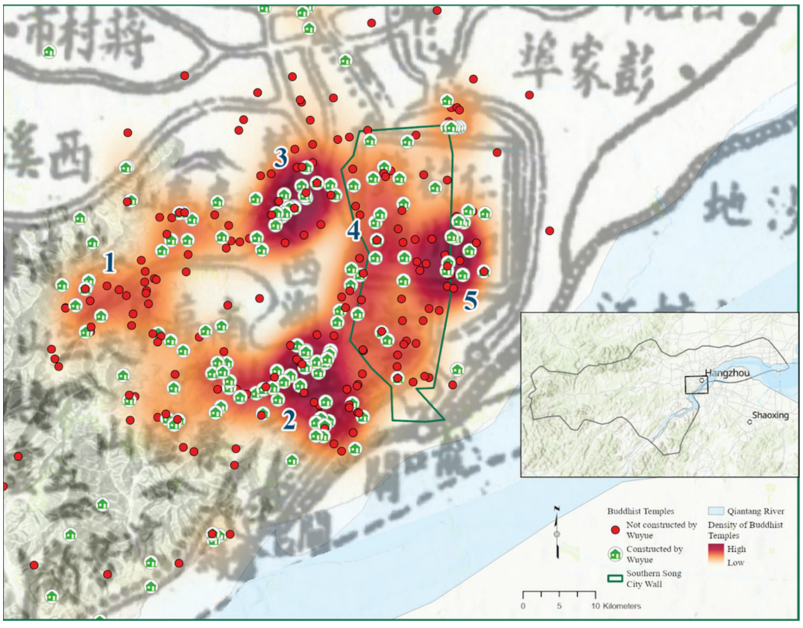


Figure 5. Distribution of Buddhist temples constructed by the Wuyue 吳越 kingdom overlapped with the hot zones (from the result of kernel density analysis).

Besides receiving influence from the Wuyue court, Zones 4 and 5 can also observe the state's power during the Southern Song. The Southern Song court built many official Buddhist temples (*guansi* 官寺) in Zones 4 and 5 for the sake of establishing state power and serving the imperial correspondents—royal families and government officials often partook in Buddhist festivals and rituals in those official Buddhist temples. For instance, the *Xianchun Lin'an zhi* recorded that in the Mingqing Temple 明慶寺, one of the official Buddhist temples in Zone 5, "whenever the emperor is holding a ritual, all of his subordinate officials will be present." (Qian 1970).

Although Zone 1 has fewer temples that were constructed by the Wuyue kings, we can still observe the impetus of state power in its temple developments. For instance, though the Lingyin Temple was not initially constructed by the Wuyue kings, its prominence is highly associated with imperial courts in different reigns. In Wuyue's regime, king Qian Liu 錢鏐 (852–932) expanded the Lingyin Temple by building 1300 rooms and halls. In the Northern Song, the temple became an empress's merit temple (*gongde miao* 功德廟, a temple built to accumulate merits for the afterlife for whom it was built for). The emperor thus bestowed the temple with a large mass of farmland. The prestige of the Lingyin Temple was sustained until the Southern Song and it was also established as one of the temples of the Five Mountain and Ten Monastery system.

5.1.3. Politics

The policy of the empress/concubine family temple system, unique to the Southern Song dynasty, also played an essential role in the distribution of Buddhist temples in Zones 1, 2, and 3. The system was established and institutionalized in the Southern Song, being unprecedented and not seen in later dynasties in Chinese history. In this system, almost

every established empress can have their own merit temple or burial temple (*fensi* 墳寺) (Hong 2012). Many of the imperial merit temples were built around the West Lake (in Zones 1, 2, and 3) because the Lin'an city (especially within the city walls) was too crowded to construct temples (Mou 2008). Zone 1, for instance, includes the Jiqing Temple 集慶寺, which was built by the Southern Song emperor Lizong 宋理宗 (1205–1264) for Concubine Yan 閻氏, with records that "the halls and shrines are even greater than the Lingyin Temple and the Tianzhu Temple." Other examples of Zone 1 include the Zifu Temple 資福寺 built for Concubine Feng 奉妃 as her merit temple, and the Jianfu Temple 薦福寺 for the Empress Dowager as her burial temple. There were also temples in Zone 2 newly constructed in the Southern Song that served the function as merit temples or burial temples for empresses, as recorded in the *Silent Records by Zhanyuan* (*Zhanyuan jingyu* 湛淵靜語), "After bounding south, all seven emperors are buried at Dongyue 東粵, and all five empresses are buried at Chishan 赤山 (present day Chishanfu 赤山埠) in Hangzhou." (Bai 1985). Hence, the empress/concubine family temple system and the ties with state power are reflected in the influence of politics on temples.

5.1.4. Commercial Activities

The three sections above explained how factors including *fengshui*, state power, and politics directly influence the distribution of Buddhist temples. In this section, however, we would like to turn to discussing how the distribution of Buddhist temples became factors that influenced other spatial patterns. In our observation from the visualized maps, the distribution contributes to a cluster of certain commercial activities—or the term "sacred economy"—used by Michael Walsh to describe the situation in which humans endeavor to "conduct communal actions and transactions within a monastic setting." (Walsh 2010).

In Zones 4 and 5, the meridional pathway between the two zones coincidentally highlights a unique feature that is recorded in the *Xianchun Lin'an zhi* as follows: the Imperial Street (*yujie* 御街, sometimes also recorded as *Hangcheng dajie* 杭城大街 or *Hangzhou dajie* 杭州大街). We highlighted the pathway in Figure 6 below. The location of Imperial Street is georeferenced with Shiba Yoshinobu's historical map of Lin'an city in his *Chūgoku toshi shi* 中國都市史. (Yoshinobu 2002).

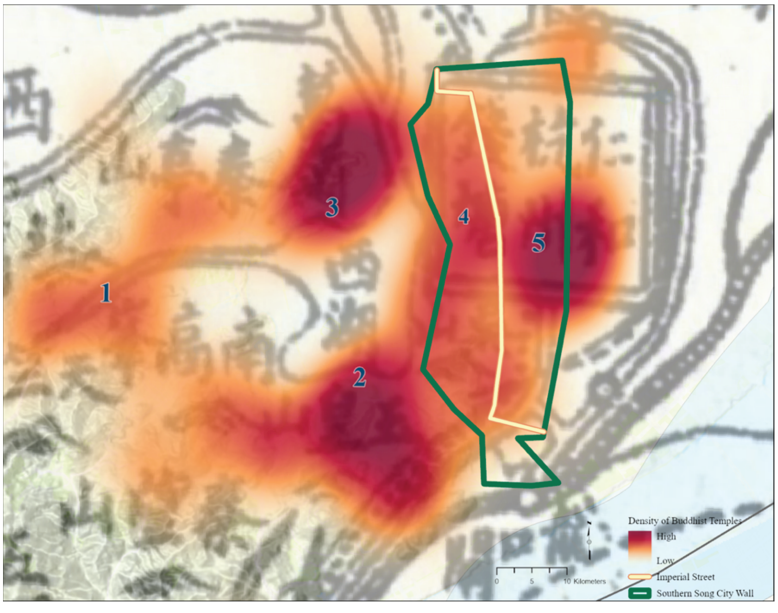


Figure 6. The Imperial Street (*yujie* 御街) and hot zones from the result of kernel density analysis.

Both sides of the Imperial Street were called the Imperial Corridor (*yulang* 御廊), it was a national trading hub filled with regional goods from all over the country. Recorded in Nai Dewong's 奈德翁 (date of birth and death unknown) *Splendor Records of a Capital* (*Ducheng jisheng* 都城紀勝), "pearls and jewels, treasures and rarities, fresh flowers and fruits, seafood and wild food, marvelous implements and utensils, all the unique commodities in the world are assembled here in the morning." (Nai 1982; Xie 2016). There were more than 150 stores on the Imperial Street that the historian Lin Zhengqiu 林正秋 divided into the following seven categories: daily groceries, restaurants, clothing, books and stationaries, medicine, pawnshops, and entertainment centers (Lin 1990). Almost half of the population within the city lived along this path—324 people per acre as estimated by Gernet, which approximately delineates Zones 4 and 5. (Gernet 1962).

According to the *Xianchun Lin'an zhi*, the Imperial Street is explicitly built for the emperor's seasonal ancestor worship (4 times per year) from the imperial palace to the Jingling Temple 景靈宮. The route of the emperor's worship began from the imperial palace (on the southern end of the city) and ended at the northwestern corner of Lin'an city. In addition to the emperor's ancestral worship, there were also many Buddhist festivals, birthday celebrations for the emperor or the empress, and rituals that royal members, government officials, and commoners participated in at Buddhist official temples. As mentioned in earlier sections, many official Buddhist temples were newly built by the Southern Song court along the Imperial Street (Zones 4 and 5) for the sake of serving the imperial family or government officials. For instance, the *Mengliang lu* 夢梁錄 documented that the Qianqing Guanghua Temple 千傾廣化院 was the venue for "praying for merits in the Lin'an Prefecture" and "governmental officials celebrating and praying for the emperor's birthday." (Wu 1980).

Owing to those religious activities, many worship-related items were in demand in the proximity of the official Buddhist temples—including incense, candles, paper money, flowers, pastries, fruits, and exquisitely handcrafted artisan souvenirs (Duan 2020; Chen 2013). The *Mengliang lu* recorded that whenever the emperor worshipped at the official Buddhist temple, he bestowed handcrafted flowers (made from paper and fabric) to surrounding officials and his entourages, and those artisans were bought from shops in the Imperial Corridor (Wu 1980). Those religious activities not only increased the demand for worship-related items but also generated great market opportunities for the surrounding businesses, including restaurants or entertainment hubs.

We are not to claim that all the prosperity of the Imperial Street was attributed to the worshiping activities of temples. There were still other conditions, such as Daoist and folk religious festivals, or locations of official institutions. For instance, the Three Institutions (*sanxue* 三學; Imperial Clan School, Imperial University, and Military Academy) and the Examination Hall of the Ministry of Rites (*libu gongyuan* 禮部貢院) were on the Imperial Street, which hence promoted book markets and house rental services for students (Yao 2019). However, this project aims to the distribution of Buddhist temples, we only focus on the commercial exchanges associated with its religious activities. Hence, since our findings indicate that the temples coincidentally reside in commercial districts, what we are trying to explain above is that certain commercial exchanges within the commercial districts are results of the congregation of Buddhist temples; not the other way around that the temples were built because of the congregation of commercial activities.

5.2. Theoretical Considerations

One of the ironies in Chinese Buddhism, especially in monastic life, is the contradiction between the renunciation of the materialistic world and also being able to accumulate wealth through this act of renunciation—i.e., Buddhist practices. As stated by Michael Walsh in his *Sacred Economies: Buddhist Monasticism and Territoriality in Medieval China*, the Buddhist community is one of the most powerful economic forces in society (Walsh 2010). For Buddhist entities, including establishments, institutions, and communities, to secure

their longevity as a religion down the road of history, wealth accumulation is necessary. After all, a Buddhist temple

> "needed funding, donors, lay supporters, monks to inhabit it, an abbot to oversee it, offices, bookkeepers, workers, farmers, wood, and tiles. To acquire these necessities, it depended on a reciprocal exchange process between institution and social agent, which in turn produced a space of consumption; meaning infused into that process made it sacred." (Walsh 2010)

In his *Practical Reason: On the Theory of Action*, Pierre Bourdieu (1930–2002) framed religion within an economy by stating that religion is simultaneously an enterprise with an economic dimension but at the same time cannot openly admit participation in the economy (Bourdieu 1998). In other words, religious institutions are aware of being engaged in economic exchange but are able to persuade themselves that it is not an act of economic exchange. The rationale, provided by Bourdieu, was that as soon as religious agents realize that this action can benefit their religion, they are willing to overlook the definition of the notion of "economic exchange" to justify their actions and functions. It is "a network of relations where those forces are instituted, shaped, and conditioned" that greatly benefits the sustenance of a religion (Walsh 2010). For religious institutions to flourish, they should be situated within the social-economic territory that generates power and legitimacy within a certain cultural context. Hence, the combination of cultural and economic capital produced longevity for a religious institution. Starting from the Song, monasteries served as market or economic centers due to their active participation in local exchanges, including the following:

> "trading, allowing for the interaction of literati and monks, disseminating Buddhist texts and lectures, sometimes even paying taxes in support of underemployed farmers, hiring field laborers, supporting local fairs and markets, and fully participating in the kind of sociopolitical atmosphere that allowed such an increase in commercialism and exchange to happen." (Walsh 2010)

Apart from commercial exchanges that fueled religious growth, our results verified Walsh's statement and indicated that the spatial pattern of Buddhist temples is also related to factors including influences from state power, governmental policies, population, and geographic landscapes. The relationship between the spatial formation of religious sites and external factors in a region can be explained by a theory proposed by Jiang Wu, Daoqin Tong and Karl Ryavec in 2013—Regional Religious System (RRS)—a new theoretical understanding of the regional pattern of the religious sites' distribution. They took a combinational approach of utilizing GIS technology on regionalism and suggested that the spatial formation of religious sites in the locality can be understood as a regional religious system in which religious institutions "are conditioned by physical, geographical, administrative, cultural, or socioeconomic systems and are highly dependent on regionally and locally distributed variables such as population, economy, transportation, education, culture, ethnicity, and language, etc." (Wu et al. 2013). Hence, discerning the distribution of religious sites suggests an existing regional system or model surrounding religion.

Sophisticated sociocultural integration with Chinese religion can be observed as a structural formation, and the results of our study depict this phenomenon from a regional perspective. GIS analyses and interpretations are not the final steps in this study. The meaning and value of the results are more effectively generated via combining distant and close readings—distant reading of the *Xianchun Lin'an zhi* provides us with details of religious elements, and close reading of it and other historical sources offers evidence for further interpretation of the visualized maps (resulting from distant reading). GIS serves as a vehicle that enables us to acknowledge when, where, and how geographical attributes might have contributed to answering specific questions.

6. Concluding Remarks and Ways Forward

Through geoparsing Buddhist elements in the *Xianchun Lin'an zhi*, we can closely examine how Buddhism was imagined and manifested in a regional context that may not be easily performed by close reading. This process of data distillation from historical materials is what we in the field of the humanities have yearned for. As claimed by Jason Protass, "GIS is a tool that magnifies whatever patterns are already present in our source texts" (Protass 2016)—we make use of this approach and paint the Southern Song dynasty Buddhist landscape on a canvas that is ArcGIS Pro and its visualized maps.

For locating religious sites from historical sources, we are aware of the limitation and the veracity of the data source—government records are not as accurate as fieldwork results (i.e., to physically locate the temples on-site). Kenneth Dean once claimed that "one of the greatest sources of frustration in historical GIS research in China concerns the limited scope of data within the traditional official gazetteers" and Fenggang Yang remarked that "county-level government officials may routinely underreport numbers of religious site because of political considerations." (Dean 2022; Yang et al. 2022). It is true that datasets compiled in recent years can be corroborated via intensive fieldwork that Dean and Yang did in their respective works. However, for historical datasets (such as the Song dynasty Buddhist temples in the article), what we can do is construct a preliminary database and distill key information from historical sources. In this way, we can still achieve the integrity of the data that Dean said on gazetteers to "indicate historical peaks in religious construction." (Dean 2022).

The potential of applying GIS to Buddhist research is vast and immense. GIS provides us with a new pair of lenses to look through—the role of spatial information in the Buddhist world. In this case, the essential materials required to apprehend the Hangzhou Buddhist culture are easily captured via GIS. Materials include implicit intertextuality between people, places, and events that can be linked together via a broader knowledge originating from conducting direct research on the database itself.

Although GIS can enhance our processes and understanding, we should know that GIS cannot be treated as a replacement for traditional Buddhist studies research. There is no denying that GIS approaches are competent in bringing out novelty and depth of research, but it is always the primary sources that engender research questions and hypotheses. Though digital approaches in the humanities (especially Buddhism) seek to alter the means of research fundamentally, "the traditional focus on language, texts, art, culture and ideas remain the same." (Veidlinger 2019). GIS does not self-generate issues to solve but acts as a magnifying glass that amplifies the minute nuances in the materials that we may not be able to discern via close reading.

This study does not claim that Hangzhou can represent all of China, either spatially or temporally. Instead, we regard this study as a stepping stone for future research on religion focusing on regionality. Hangzhou is merely one of the many regions in China with a rich Buddhist culture; there is ample data recorded in various methods across different places and dynasties. According to Timothy Brook's calculations, there are over 1500 unique regions with rich local materials to explore all across China. Indeed, there is a gold mine of data for regional religious studies that deserves our scrutiny. However, not all of these data are ready for conducting analysis. One of the major obstacles to acquiring data for regional studies is the paucity of digitization. Quantitative analyses and visualization cannot be performed without converting qualitative textual data into quantitative numeric data—geoparsing the *Xianchun Lin'an zhi* is an attempt made in this regard. Hence, data acquisition and digitization would be the next steps forward. For future steps in terms of the methodologies during quantitative analysis, we believe that performing more sophisticated analyses (including spatial regression, network analysis, and even XML/TEI tagging applied with AI) can bring more depth to understanding the data.

Author Contributions: Conceptualization, J.L.; Data curation, Z.W.; Formal analysis, J.L.; Software, J.L.; Visualization, Z.W.; Writing—original draft, J.L.; Writing—review & editing, J.L. and Z.W. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Not applicable.

Acknowledgments: We would like to express our gratitude to the three anonymous reviewers for their thoughtful comments that helped us immensely in improving our paper.

Conflicts of Interest: The authors declare no conflict of interest.

Notes

[1] The data is collected by Wu and his team, including the two authors of this article. The authors, after acquiring permission, produced this article as an initial result. Team members include (in alphabetical order): (1) Principal investigator: Jiang Wu; (2) Data assistant: Jeffrey Liu, Tianyu Lei, Xiaoxuan Li, Xinrui Zeng, Yi Liu, Ziling Wan.

[2] The spatial data of the city walls of Southern Song dynasty Hangzhou is referenced from 1127 to 1279 Hangzhou City Wall, Zhejiang, China Regional Religious System Project: RRS_HZ_015 Center for Buddhist Studies, The University of Arizona (https://rrs.arizona.edu/project/1127-1279-hangzhou-city-wall-zhejiang-china/). Accessed on 1 May 2022.

[3] However, due to the dearth of useful data, only 469 were successfully geoparsed.

References

Bai, Ting 白珽. 1985. *Zhanyuan Jingyu* 湛淵靜語. Beijing: Zhonghua Shuju.

Bingenheimer, Marcus. 2022. Traversing the 'Pilgrimage Square' of Northern China in the 19th Century. In *The Formation of Regional Religious Systems in Greater China*. Edited by Jiang Wu. Routledge Spatial Humanities. London: Routledge.

Bol, Peter K. 2022. On the Spatio-Temporal Analysis of Religious Institutions: A Study of the Jinhua Prefectural Gazetteer of 1480. In *The Formation of Regional Religious Systems in Greater China*. Edited by Jiang Wu. Routledge Spatial Humanities. London: Routledge, pp. 58–70.

Bourdieu, Pierre. 1998. *Practical Reason: On the Theory of Action*. Translated by Randall Johnson. Stanford: Stanford University Press.

Chen, Jing 陳晶. 2013. Nansongyujie Shougongyi Mingwuxiaokao 南宋御街手工藝名物小考. *Zhuangshi* 裝飾 12: 116–18. Available online: http://www.izhsh.com.cn/doc/10/2624.html (accessed on 15 June 2022).

Dean, Kenneth. 2022. Historical GIS and the Study of Southeast China and the Southeast Asian Chinese Diaspora. In *The Formation of Regional Religious Systems in Greater China*. Edited by Jiang Wu. Routledge Spatial Humanities. London: Routledge, pp. 177–97.

Dennis, Joseph. 2015. *Writing, Publishing, and Reading Local Gazetteers in Imperial China, 1100–1700*. Harvard East Asian Monographs 379. Cambridge: Harvard University Asia.

Duan, Xiaolin. 2020. *The Rise of West Lake: A Cultural Landmark in the Song Dynasty*. Seattle: University of Washington Press.

Fogel, Joshua. 2003. Naitō Konan (1866–1934) and Chinese Historiography. *Historiography East and West* 1: 137–53. [CrossRef]

Gernet, Jacques. 1962. *Daily Life in China, on the Eve of the Mongol Invasion, 1250–1276*. Stanford and Calif: Stanford University Press.

Grootaers, Willem A., Shiyu Li, and Fu-Shih Wang. 1995. *The Sanctuaries in a North-China City. a Complete Survey of the Cultic Buildings in the City of Hsuan-Hua (Chahar)*. Bruxelles: Institut Belge des Hautes Études Chinoises. Available online: https://www.books.com.tw/products/F013459318 (accessed on 1 June 2022).

Hong, Mingcong 洪銘聰. 2012. Nansong jiamiaozhi de fazhan 南宋家廟制的發展. Master's Thesis, National Taipei University, Taipei, Taiwan. Available online: https://hdl.handle.net/11296/fyrpry (accessed on 1 June 2022).

Iwata, Ray. 2010. Chinese Geolinguistics: History, Current Trend and Theoretical Issues. *Dialectologia: Special Issue* 1: 97–121.

Lin, Zhengqiu 林正秋. 1990. Nansong Xianchun Lin'an zhi shulüe 南宋《咸淳臨安志》述略. *Wenxian* 文獻 10: 120–27.

Moretti, Franco. 2013. *Distant Reading*. London and New York: Verso.

Mou, Zhenyu 牟振宇. 2008. Nansong Linancheng Simiaofenbu Yanjiu 南宋臨安城寺廟分佈研究. *Journal of Hangzhou Teachers College* 杭州師範學院學報 *Social Sciences Edition* 社會科學版 1: 95–101.

Nai, Dewong 奈德翁. 1982. *Ducheng Jisheng* 都城紀勝. Beijing: China Commercial Press.

Pals, Daniel L. 2009. *Introducing Religion: Readings From the Classic Theorists*. Oxford: Oxford University Press.

Protass, Jason. 2016. Toward a Spatial History of Chan: Lineages, Networks, and the Lamp Records. *Review of Religion and Chinese Society* 3: 164–88. [CrossRef]

Qian, Shuoyou 潛説友. 1970. *Xianchun Lin'an Zhi* 咸淳臨安志. 10th Daoguang Year (1830). In *Zhongguo Fangzhi Congshu* 中國方志叢書 49. Taipei: Chengwen.

Rowe, William. 1993. Introduction. In *Cities of Jiangnan in Late Imperial China*. Edited by Linda Cooke Johnson. SUNY Series in Chinese Local Studies. Albany: State University of New York Press, pp. 1–16.

Sun, Zhi 孫治, and Zeng Xu 徐增, eds. 1888. *Wulin Lingyinsizhi* 武林靈隱寺志. In *Zhongguo Fosi Shizhi Huikan* 中國佛寺史志彙刊. Chinese Buddhist Electronic Text Association (CBETA) edition. 110 vols. Taipei: Mingwen Shuju, vol. 23.
Veidlinger, Daniel M., ed. 2019. *Digital Humanities and Buddhism: An Introduction*. Introductions to Digital Humanities—Religion, Volume 1. Berlin: De Gruyter.
Walsh, Michael J. 2010. *Sacred Economies: Buddhist Monasticism and Territoriality in Medieval China*. New York: Columbia University Press.
Welter, Albert. 2022. Making and Marking Buddhist Sacred Space: Wuyue Buddhism and Its Influence in the Song Dynasty (960–1279). In *The Formation of Regional Religious Systems in Greater China*. Edited by Jiang Wu. London: Routledge, pp. 35–57.
Wu, Zimu 吳自牧. 1980. *Mengliang Lu* 夢梁錄. Hangzhou: Zhejiang Renmin Chubanshe.
Wu, Zhijing 吳知鯨, ed. 1780. Wulin Fanzhi 武林梵志. In *Zhongguo Fosi Shizhi Huikan* 中國佛寺史志彙刊. Chinese Buddhist Electronic Text Association (CBETA) edition. 110 vols. Taipei: Mingwen Shuju, vol. 7.
Wu, Jiang, ed. 2022. *The Formation of Regional Religious Systems in Greater China*. London: Routledge. [CrossRef]
Wu, Jiang, Daoqin Tong, and Karl Ryavec. 2013. Spatial Analysis and GIS Modeling of Regional Religious Systems in China: Conceptualization and Initial Experiments. In *Chinese History in Geographical Perspective*. Edited by Jeff Kyong-McClain and Yongtao Du. Lanham: Lexington Books, pp. 179–96.
Wu, Jiang, and Qiyuan Wang, eds. 2021. *Fofa yu Fangfa: Mingqing Fojiao yu Zhoubian* 佛法與方法:明清佛教與周邊. Shanghai: Fudan University Press.
Xie, Jing. 2016. Disembodied Historicity: Southern Song Imperial Street in Hangzhou. *Journal of the Society of Architectural Historians* 75: 182–200. [CrossRef]
Yang, Fenggang, Joey Marshall, and J. E. E. Pettit. 2022. Churches at the Margin: Mapping the Establishment of Protestant and Catholic Churches in China, ca. 1949–2004. In *The Formation of Regional Religious Systems in Greater China*. Edited by Jiang Wu. Routledge Spatial Humanities. London: Routledge, pp. 148–59. [CrossRef]
Yao, Yonghui 姚永輝. 2019. Nansong Lin'an duchengkongjian de bianqian: Yi xibeiyu de guanxuebuju wei zhongxin 南宋臨安都城空間的變遷: 以西北隅的官學佈局為中心. *Shilin* 史林 4: 79–88.
Yoshinobu, Shiba. 2002. *Chugoku Toshi Shi* 中國都市史. Tokyo: Tokyo Daigaku Shuppankai.
Zeng, Jie 曾潔. 2012. Menglianglu yu Xianchun Lin'an zhi 《夢梁錄》與咸淳《臨安志》. *Zhongguo difang zhi* 中國地方志 5: 57–61.
Zhang, Weiran. 2022. Regional Systems of Guanyin Pilgrimages in the Lower Yangtze Delta during the Ming-Qing Period (1368–1912). In *The Formation of Regional Religious Systems in Greater China*. Edited by Jiang Wu. Translated by Nan Ouyang. London: Routledge, pp. 113–32.

religions

MDPI

Article

From the Malay Peninsula to the Shandong Peninsula: The Transmission of Buddha Statues with Tight-Fitting Robe in the Sixth Century

Shuangqiao Meng [1] and Peining Li [2,*]

[1] School of Humanities, Guangzhou University, Guangzhou 510006, China
[2] School of Sociology & Anthropology, Sun Yat-sen University, Guangzhou 510275, China
* Correspondence: lipn5@mail.sysu.edu.cn

Abstract: Within the cultural integration of Indian Buddhist art and Chinese Buddhist art, standing Buddha statues carved in-the-round with thin, tight-fitting robes require special attention. Unlike other types of Buddha statues found in China, they are depicted wearing robes of a foreign style, while displaying the facial and body features of East Asians. These statues, which were excavated on the Shandong Peninsula in the last century, are believed to have been carved during the Northern Qi Dynasty (550–577). After years of academic exploration, the transmission route, transit point and reasons for their introduction into Shandong remain unclear, which are topics that this paper aims to address. According to typology analysis, the Buddha statues in question can be divided into three types, and their foreign counterparts have been identified through the iconology comparisons of Chinese and foreign Buddha statues. From this, in chronological order, the transmission route of three Buddha statue types can be inferred, namely from India to the Shandong Peninsula via the Malay Peninsula, the Mekong Delta and the southeastern coast of China. The route of contemporaneous Indian monks travelling from the east to the Northern Dynasties, as recorded in Chinese historical documents and the Buddhist Canon, verifies this conclusion. Along this route, the north-central Malay Peninsula is one of the main transit points where the Buddha statues were locally adapted and then spread further east.

Keywords: Buddha statues; transmission routes; Qingzhou style; Malay Peninsula

Citation: Meng, Shuangqiao, and Peining Li. 2023. From the Malay Peninsula to the Shandong Peninsula: The Transmission of Buddha Statues with Tight-Fitting Robe in the Sixth Century. *Religions* 14: 84. https://doi.org/10.3390/rel14010084

Academic Editor: Z. George Hong

Received: 23 November 2022
Revised: 2 January 2023
Accepted: 4 January 2023
Published: 6 January 2023

1. Introduction

From the 5th to the 6th century, there were frequent maritime exchanges between Southeast Asia and the Southern Dynasties, which included the cultural communication of Buddhism (Ren 2015, pp. 129–32). Based on Chinese literature and stone inscriptions, previous research initially uncovered the main trade routes from the ancient Southeast Asian kingdoms to China during the Southern and Northern Dynasties and developed a more comprehensive understanding of the Mekong Delta and the Malay Peninsula as the important transportation hubs (Pelliot 1903, pp. 248–303; Feng 2017, pp. 175–94; Chen 1992, pp. 95–108; Han 1991, pp. 219–68; Shi 2004, pp. 35–48). At the end of the 20th century, a large number of standing Buddha statues carved in-the-round with thin, tight-fitting robes were unearthed at the sites of the Mingdao Temple 明道寺 (Linqu, Shandong Province), Zhucheng (Shandong Province) and Longxing Temple 龍興寺 (Qingzhou, Shandong Province), among others (Shandong Linqu Shanwang Paleontological Fossil Museum 2010; Ren 1990; Du 1994; Xia 1998). They are also known as Qingzhou-style Buddha statues. It has gradually become clear that the direct source of the Qingzhou style are the locally adapted India-originating statues in Southeast Asia (Soper 1960; Jin 1999a, p. 25; Jin 1999b, p. 8; Jeong 1999, pp. 108–23; Yagi 2013, pp. 140–69; Kang 2013, pp. 39–60; Zhao 2018, pp. 92–98), and scholars have paid more attention to the transmission routes of Buddhism from Southeast Asia to the Northern Dynasties during this period through these

finds (Jacq-Hergoualc'h 2002, pp. 143–60; Howard 2008, pp. 70, 76–77; Kang 2013, pp. 39–60; Zhao 2016, pp. 33–46). There is relatively in-depth research regarding the interactions and similarities between the Southern Liang (502–557) statues and statues of the Fu-nan Kingdom (1st to mid-7th century) located in the Mekong Delta (Yao 2016, pp. 269–97).[1] However, previous studies that use the Qingzhou-style statues to explore transmission routes do not include a separate discussion regarding the individual styles of statues but tend to address them as a whole, yet the routes of different styles vary. Moreover, research on the important transmission role that the Malay Peninsula played in the routes of Buddhism and Buddhist art exchange in the 5th and 6th centuries is still relatively limited. Therefore, this article intends to explore these issues further, based on previous studies.

2. Three Mainstream Standing Buddha Styles in Southeast Asia and Their Transmission Routes

Carved-in-the-round standing Buddha statues of Qingzhou can be found in both a local style and a foreign style, and the distinguishing difference between the two is that the latter type wears a thin, tight-fitting robe. Based on the currently published materials, there are three main types of statue of the foreign style, which account for at least half of the total finds. These are as follows: type A—standing Buddha with a diaphanous robe draped over both shoulders; type B—standing Buddha with a densely pleated robe covering only the left shoulder; and type C—standing Buddha with a diaphanous robe covering only the left shoulder (Figure 1). Of these, the type A statue (Figure 1 (1)) is the most common and has the widest distribution. Up until now, none of the standing Buddha statues of the Qingzhou style have been found with inscriptions suitable for accurate dating. Nevertheless, typological studies reveal that type A statues belong to an earlier period than the other two and can be dated to as early as the middle of the 6th century (Meng 2021, pp. 106–9). According to previous research, the foreign style Qingzhou Buddha statues originated in India, but their appearance was likely to have come under the direct influence of the similar local statues in Southeast Asia (Meng 2021, pp. 181–219).

1 2 3

Figure 1. The main types of Qingzhou-style carved-in-the-round standing Buddha statues. (1): Buddha with diaphanous robe draped over both shoulders (type A), mid-6th century, excavated from Zhucheng, Shandong Province, Zhucheng Museum (source: photograph by the author). (2): Buddha with densely pleated robe covering only the left shoulder (type B), mid-6th century, excavated from the Longxing Temple site, Qingzhou, Shandong Province (source: Fan 2016, p. 95). (3): Buddha with diaphanous robe covering only the left shoulder (type C), mid-6th century, excavated from the Longxing Temple site (source: The National Museum of Chinese History 1999, p. 110).

Regarding the research on the transmission route from mainland India to northern China, the transmission situation in Southeast Asia is an important but weak link. The reason for the weakness lies in the lack of overall knowledge of the various styles of Southeast Asian standing Buddha statues from the 5th to the 7th century. Therefore, this article first examines the mainstream standing Buddha styles and their distribution in Southeast Asia during this period in order to respond to the question of the transmission route in Southeast Asia as the middle ground for the spread of the Buddha statues to the east.

From the 5th to the 7th century, the three main types of standing Buddha statues in Southeast Asia are similar to the Qingzhou-style statues, namely standing Buddha statues with a diaphanous robe draped over both shoulders (type A), standing Buddha statues with a densely pleated robe covering only the left shoulder (type B) and standing Buddha statues with a diaphanous robe covering only the left shoulder (type C). These three are likely to be the direct sources of the counterparts of Qingzhou style, respectively.

On the type A statues of Qingzhou style, the robes are only pleated around the chest, the edges of the wrists and ankles and the arms are completely connected to the torso. This type was first seen in the Sarnath region in northern India, where it originated, and was introduced to the Shandong coastal region in north China via the northern Malay Peninsula, the lower Mekong River and the Mekong Delta region (Figure 2).

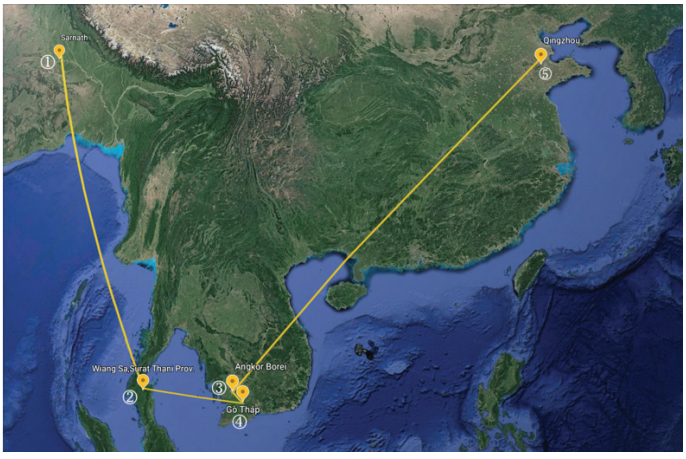


Figure 2. The schematic diagram of transmission route of standing Buddha statues with diaphanous robe draped over both shoulders (type A). ① Sarnath, Northeast India; ② Wiang Sa, Surat Thani, Thailand, North-Central Malay Peninsula; ③ Angkor Borei, Ta Keo, Cambodia, Lower Mekong; ④ Mekong Delta; ⑤ Longxing Temple Site, Qingzhou, Shandong Peninsula, China. Note: The lines in the picture are connected according to archaeological excavation or collected finds and indicate the approximate transmission route, not the exact one. The same goes for the maps below.

The Sarnath style was one of the most widely influential Buddha sculpture styles in the Gupta period and was very dominant in the 5th century (Figure 3 (1)). The style was introduced to Southeast Asia after it had spread to the northern part of the Malay Peninsula in southern Thailand (Figure 3 (2)) no later than the late 5th and early 6th centuries (Griswold 1966, pp. 62–65; Guy 2014, p. 38). The Wiang Sa standing Buddha may be the earliest standing Buddha statue with diaphanous robe draped over both shoulders (type A) in Southeast Asia. The transparent robe, twisted figure, spiral ushnisha and the quiet and elegant face all reveal a connection with the Sarnath style. Scholars have had various theories regarding its place of production. Whether it was imported (Wu 2010, p. 185; Guy 2014, pp. 38–39) or made locally (Griswold 1966, pp. 62–65; Jacq-Hergoualc'h 2002, p. 144), this statue indicates that the north-central Malay Peninsula was a source and transit point

for the Qingzhou-style standing Buddha statues with diaphanous robe draped over both shoulders.

1 2 3

Figure 3. Standing Buddha statues with diaphanous robe draped over both shoulders (type A) in India and Southeast Asia. (1): Buddha, ca. 475, Sarnath region, Uttar Pradesh, India (source: Guy 2014, p. 39, CAT. 10); (2): Buddha, late 5th century to the first half of the 6th century, Wiang Sa district, Surat Thani province, southern Thailand. (Source: Guy 2014, p. 38, CAT. 9); (3): Buddha, second half of the 6th century, Vat Romlok site, Angkor Borei, Ta Keo, Cambodia (source: Jessup and Zephir 1997, p. 147).

In the second half of the 6th century[2], in the Mekong Delta, standing Buddha statues with diaphanous robes draped over both shoulders (type A) were fully developed. Standing Buddha statues were excavated from the site of the Romlok Temple in Angkor Borei (Figure 3 (3)), which are very similar to the statues found in Zhucheng, Shandong Province, but less rigid (Figure 1 (1)). Type A Buddha statues were also unearthed at Qingzhou (Qingzhou Museum 2014, p. 94), which appear to be directly influenced by their southeast Asian counterparts.

The second type of standing Buddha statue with a densely pleated robe covering only the left shoulder (type B) has the right arm separated from the body (Figure 4). Examples of this type were found in the Amaravati–Nagarjunakonda region of the Krishna Valley in India (Figure 4 (4)), as well as in Anuradhapura and Tissamaharama in Sri Lanka at a relatively early date. The features of the two are different: the urna is carved between the eyebrow of the Krishna Valley-style statue in India and the robe covering the left body is densely pleated with rather loose robe pleats on the right side of body, while there is no urna on the Sri Lanka-style statue of the 2nd to 3rd centuries and the pleats of robe are dense all over the body. The lack of or presence of the urna is the most distinguishing difference between the Krishna Valley style and the Sri Lanka style (Bopearachchi 2012, p. 57). Scholars believe that the indigenous characteristics of the Sri Lanka-style statues were formed based on the adoption of the features of similar statues in India, which led to a statue style that was different to the Amaravati–Nagarjunakonda statues (Bopearachchi 2012, pp. 49–68).

1 2 3 4

Figure 4. Standing Buddha statues with densely pleated robes covering only the left shoulder (type B). (1): Bronze Buddha, the 6th century, Dong Duong, Quang Nam Province, Vietnam (source: Griswold 1966, figure 6a); (2): Bronze Buddha, the 6th to 7th century, Nakhon Ratchasima, Thailand (source: Guy 2014, p. 35, CAT. 5); (3): The image of disciples on the relic box, the 6th century, relic chamber of Khin Ba stupa, Sri Ksetra, Myanmar (source: Guy 2014, p. 81, CAT. 27); (4): Buddha, Amaravati, the 2nd to 3rd century (Source: China Cultural Relics Exchange Center 2007, p. 59, figure 8).

Thus, the Qingzhou style statues are derived from Krishna Valley-style statues in India, not Sri Lanka (Meng 2021, pp. 210–11). In contrast, the similar standing Buddha statues in Southeast Asia, which are seen as the transmission middle ground, have been found in both the Krishna Valley style and the Sri Lankan style. A 6th-century standing Buddha unearthed in Dong Duong, eastern Vietnam (Figure 4 (1)), has an urna between its eyebrows and a loosely pleated robe covering the right side of its body, which are the characteristics of the Amaravati–Nagarjunakonda statue style, whereas a 6th to 7th century standing Buddha found in Nakhon Ratchasima Thailand (Figure 4 (2)) displays distinctive features of the Sri Lanka-style statues: no urna and a relatively densely pleated robe over the whole body.

Therefore, it appears that in Southeast Asia, which is the middle ground for the eastward transmission of standing Buddha statues with densely pleated robes covering only the left shoulder (type B), two types of statues from different origins coexist, indicating that the diffusion route in Southeast Asia is more complicated than previously thought. As discussed above, there is at least one route from the Krishna River Valley in India to eastern Vietnam. However, there may also be a route from Sri Lanka to Nakhon Ratchasima through the southeastern hinterland of Thailand. Considering the geographical location of the two, the transmission could be by sea.

Another possible eastern route from the Krishna River Valley is through the Sri Ksetra region in Myanmar based on the following evidence: the robe of a statue of a disciple on the Sri Ksetra reliquary (Figure 4 (3)) is almost plain (similar to type A) except for the left lower hem, which is everted and carved with vertical pleats. Such a feature is distinct from the features of the more commonly seen statues with diaphanous robe but is often found on the type B Buddha statues. This suggests that the Buddhist statue style in Sri Ksetra was also influenced by the type B statues at some point and that the eastward transmission route (Figure 5) from India might have bypassed Myanmar and therefore could have been an overland route.

Figure 5. Schematic diagram of the transmission route of standing Buddha statues with densely pleated robe covering only the left shoulder (type B). ① Nagarjunakonda, Krishna River Valley, India; ② Amaravati, Krishna River Valley, India; ③ Anuradhapura, Sri Lanka; ④ Sandagiri Dagaba, Tissamaharama, Sri Lanka; ⑤ Sri Ksetre, Myanmar; ⑥ Nakhon Ratchasima, Thailand; ⑦ Dong Duong, Quang Nam Province, Vietnam; ⑧ Longxing Temple Site, Qingzhou, Shandong Peninsula, China.

The third type is a standing Buddha with a diaphanous robe covering only the left shoulder (type C) (Figure 6). The right chest and shoulders are exposed, the right arm is separated from the body and the left arm is connected to the body. In the early statues, the left hand is raised and holding the corner of the robe, while the right hand is lowered in the gesture of varadamudrā. Except for the hem, there are almost no pleats on the robe. The ankle shows two layers of hem, and the upper layer is arc-shaped at the left ankle.

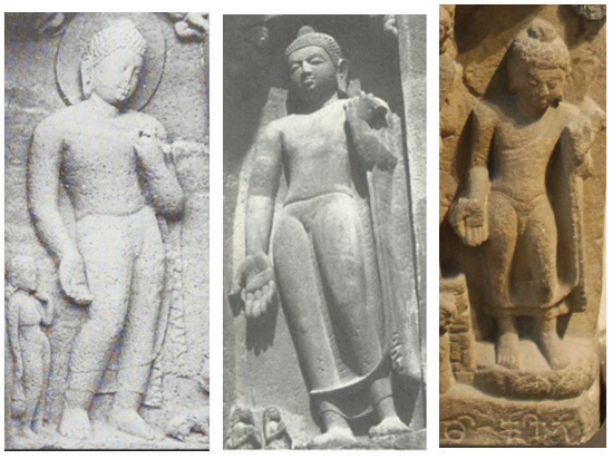


Figure 6. Standing Buddhas with diaphanous robe covering only the left shoulder (type C) in India. (1): Buddha of the Façade to left of door, Cave 19. Ajanta, north-central Maharashtra state, India, late 5th century (source: Huntington 1985, figure 12.4); (2): Buddha of the Façade, Cave 19. Ajanta, north-central Maharashtra state, India, late 5th century (source: Yagi 2013, p. 147, figure 15); (3): Buddha of a Stele, Sarnath, Eastern Uttar Pradesh state, Calcutta Museum, India, 5th century (source: https://commons.wikimedia.org/wiki/Category:Scene_from_Buddha%27s_Life_-_Indian_Museum_-_ACCN_S.4/A25096 (last access: 22 November 2022)).

Currently, the earliest finds in this style are the standing Buddhas in the Ajanta Caves in India in the 5th century (Figure 6 (1) and (2)) and from the steles of Buddha's life found in Sarnath (Figure 6 (3)). These statues have a high ushnisha (uṣṇīṣa), graceful facial features with slightly closed eyes looking down, wide shoulders and a broad chest. The left leg is bent, the right hip is lifted and the body is twisted and full of motion. The hem of the robe on the right upper side is at the level of the chest. These standing Buddha statues with diaphanous robes covering only the left shoulder (type C) are usually placed on both sides of the main statue as the retinue (脅侍), and the main statue wears a robe draped over both shoulders. It seems that type C standing Buddhas were the mainstream style of statues in India (at least in Sarnath and Ajanta), which is very different from the situation in Southeast Asia.

Around the 6th century AD, standing Buddhas with diaphanous robes covering only the left shoulder were one of the most common types of statue in Southeast Asia. A statue unearthed in Kedah, Malay Peninsula, dating to the early 6th century, displays the Indian three-bend posture with the left hand holding the corner of the robe, the right hand lowered in the gesture of varadamudrā and the short outer layer of robe-tails on the left leg is arc-shaped. Nevertheless, its ushnisha (uṣṇīṣa) is low with large and flat spiral curls, and the torso is relatively slim (Figure 7 (1)). Such features are not seen on similar Indian statues but have been found on Qingzhou-style statues, especially the low, flat, spiral curls which appear to have been directly influenced by the type C statues of Southeast Asia.

1 2 3

Figure 7. Standing Buddhas with diaphanous robes covering only the left shoulder (type C) in the Malay Peninsula. (1): Buddha, copper alloy, excavated from site 16A, Bujang valley, Kedah, Malay Peninsula, early 6th century (source: Guy 2014, p. 75, CAT. 20); (2): Buddha, copper alloy, Malay Peninsula, Asian Civilization Museum, Singapore, 6th to 7th century (source: Guy 2014, p. 75, CAT. 22); (3): Buddha, sandstone, reportedly found in peninsular Thailand, National Museum, Bangkok, 6th to 7th century (source: Guy 2014, p. 8, figure 7).

No later than the first half of the 6th century, similar standing Buddha statues made of stone appeared in the lower Mekong and Mekong Delta regions. A type C statue was unearthed from the ruins of Vat Romlok, (Figure 8 (1)) which some scholars believe to date from the 6th or 7th century (Boisselier 1989, p. 31; Giteau 1965, p. 43; Wu 2010, p. 68). Its ushnisha is low and indistinguishable from its ground hair (地發), the spiral curls are flat and big and the left-side hem of the tail of the robe is arc-shaped. The lifted hip and bent knee posture is obvious, which is similar to the early 6th century statue unearthed in Kedah, Malay Peninsula. The later bronze Buddha statue from the Malay Peninsula also

partially displays an ushnisha, which is low and indistinguishable from the ground hair, although the hem position of upper left robe is slightly lower (Figure 7 (2)). Moreover, in the latter statue, the torso is slimmer, the movement range of the bent knees and lifted hip is reduced and the posture is more rigid. There is also a change in the hand posture, namely the appearance of Abhayamudrā. These features are consistent with the Qingzhou-style Buddha with a diaphanous robe covering only the left shoulder (type C) (see Figure 1 (3)), which may be the common evolutionary trend of this type of statue after the middle of the 6th century. Such statues made of stone are also found at the Óc Eo site in the Mekong Delta (Figure 8 (2)). Standing Buddhas of this style in the 7th and 8th centuries are also seen in the northwestern region of present-day Cambodia (Jessup and Zephir 1997, p. 150), which may have spread from the lower reaches of the Mekong or the Mekong Delta region.

1 2 3

Figure 8. Standing Buddhas with diaphanous robe covering only the left shoulder (Type C) in the Mekong Delta. (1): Buddha, stone, excavated at the site of Vat Romlok, Angkor Borei, Cambodia, 6th century (source: Giteau 1965, p. 43, Pl. 8); (2): Buddha, stone, excavated at Nen Chua, Kien Giang Province, Vietnam, 7th century (source: Döng 2022, p. 338, figure 214); (3): Buddha, wood, excavated at Tháp Mười, Southern Vietnam, late 5th century (source: Malleret 1963, Pl. XXI).

The transmission routes of the three South Asian Buddha statue styles to the east is quite complicated. Its complexity is reflected in the following points: First, transmission may have occurred many times over a long period of time. Second, in addition to the main passages through the north-central Malay Peninsula and the Mekong Delta, there are branch lines; moreover, there is a mutual influence between styles. Finally, the transmission areas of the two types of standing Buddhas with diaphanous robes overlap, which will be discussed below.

A standing Buddha statue with a diaphanous robe covering only the left shoulder was unearthed in Tháp Mười in the Mekong Delta and dated to the end of the 5th century (Figure 8 (3)) (Malleret 1963, pp. 156–57, PL. XXI). Despite the fact that Mekong Delta is located farther east, this find is dated earlier than the statues of the same style excavated in the Malay Peninsula. Its high ushnisha also shows the Southeast Asian ushnisha style seen on the standing statues with a robe covering only the left shoulder, prior to the influence of Amaravati and other styles. The bodies of 5th-century Indian standing Buddha statues with diaphanous robes covering only the left shoulder are bulky and not so slender (Figure 6). Some Southeast Asian statues of the 6th and 7th centuries show similar robust

features (see Figure 4 (1) and Figure 7 (1)), while others are slim and slender (see Figure 3 (3) and Figure 7 (2)). The wooden Tháp Mười Buddha, as an early example of the latter, could shed light on the origin of this type of statue. Other examples are the 6th century standing Buddhas with diaphanous robes covering only the left shoulder, unearthed in the Malay Peninsula and the Mekong Delta. Regarding the two layers of robe-tails on the left calf, the shorter outer one is generally arc-shaped. This is very different from the Sarnath statues, on which this part is a right angle (Guy 2014, p. 75), but bears significantly more resemblance to the Ajanta cave statues, despite their more distant location (See Figure 6). As discussed above, the transmission of Buddhist art was not a linear process from west to east, but occurred in multiple different instances. During the repeated transmission from the 5th to the 7th century, the three types of standing Buddha statues were gradually locally adapted in Southeast Asia and at the same time continued to spread farther east, eventually reaching China.

A standing statue which is reported to have come from the Malay Peninsula region in southern Thailand wears a diaphanous Buddhist robe covering the left shoulder and lifts a corner of the robe with the left hand (Figure 7 (3)). It is generally considered to have its stylistic roots in the above-mentioned Ajanta and Sarnath standing Buddhas with diaphanous robes covering the left shoulder, but some scholars believe that it is likely to be based on the statues of Andhra Pradesh in southeastern India (Guy 2014, p. 7), namely the Amaravati–Nagarjunakonda region of the Krishna Valley, where, as discussed above, type B statues are common. The author believes that, as this statue from southern Thailand lifts its robe with its left hand, causing a vertical pleat, it indeed draws reference from the Nagarjunakonda-style statues. The fusion of these stylistic elements is reminiscent of the robe of monks on the Sri Ksetra reliquary (See Figure 4 (3)). It appears that in the transmission route from India to Southeast Asia of the standing Buddha statues with robes covering only the left shoulder (Figure 9), there is a branch line through Myanmar, and in the process of eastward transmission, the two styles of densely-pleated and diaphanous robes interacted and blended with each other.

The interaction between these two styles is also reflected on the ushnisha. The Indian Buddha statues of the 5th century with diaphanous robes covering only the left shoulder have a high ushnisha which is distinguishable from the ground hair (Figure 6 (2)). On the other hand, the similar gilt bronze and stone statues in Southeast Asia from around the 6th century generally have a low ushnisha, and there is no clear boundary between the ground hair and the ushnisha. In fact, this type of low ushnisha appeared on early Indian Amaravati-style statues (See Figure 4 (4)) and Sri Lankan Anuradhapura-style statues (Jessup and Zephir 1997, p. 146). As time passed, the low ushnisha was further developed and the boundary between the ground hair and the ushnisha almost disappeared, which became a significant feature of Southeast Asian statues in the 6th century. The diaphanous robes which cling to the outlines of the body are derived from the standing Buddha statues in Sarnath, which wear diaphanous robes draped over both shoulders. Therefore, it seems that the development of the Southeast Asian type C statues is related to the transmission of the type A and B statues in the same region.

In particular, the eastward transmission route of type C statues (Figure 9) has a considerable degree of overlap with the type A statues in Southeast Asia (Figure 10): starting from the Indian subcontinent, the route passes through the northern and central-northern regions of the Malay Peninsula in Southeast Asia to the lower reaches of the Mekong River and the Mekong Delta region and then to northern China. The areas where the routes overlap are mainly the northern Malay Peninsula and the Mekong Delta, which may have been common transit areas during the eastward transmission of these two types of statues.

To sum up, based on the understanding of the three mainstream styles of standing Buddha statues in Southeast Asia and by examining their distribution, their eastward transmission routes can be mapped out, resulting in the main transit areas as the central-north Malay Peninsula and Mekong Delta. So, can this route and its transit points be verified in

the historical records? Next, we will explore the records of the cultural exchange of Buddhism from India to the Northern Dynasties via Southeast Asia in ancient Chinese texts.

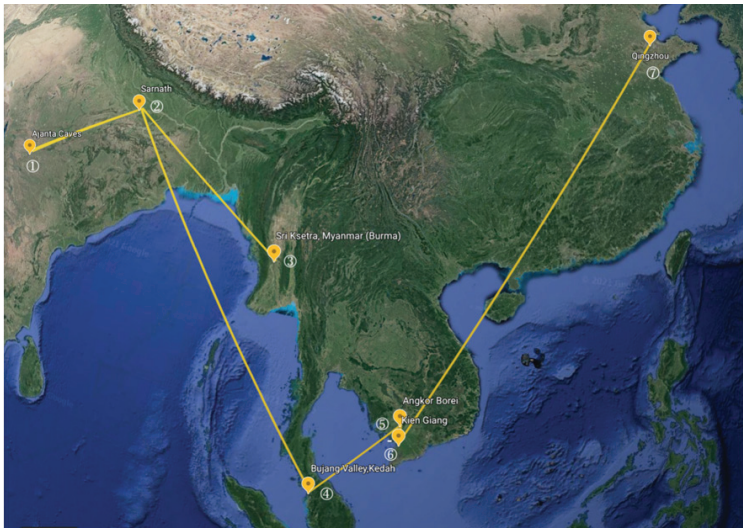


Figure 9. The schematic diagram of the transmission route of standing Buddha statues with diaphanous robe covering only the left shoulder (type C). ① Ajanta Caves, India; ② Sarnath, India; ③ Sri Ksetre, Myanmar; ④ Bujang Valley, Kedah, Malay Peninsula; ⑤ Vat Romlok Site, Angkor Borei, Cambodia; ⑥ Nen Chua, Kien Giang Province, Vietnam; ⑦ Longxing Temple Site, Qingzhou, Shandong Peninsula, China.

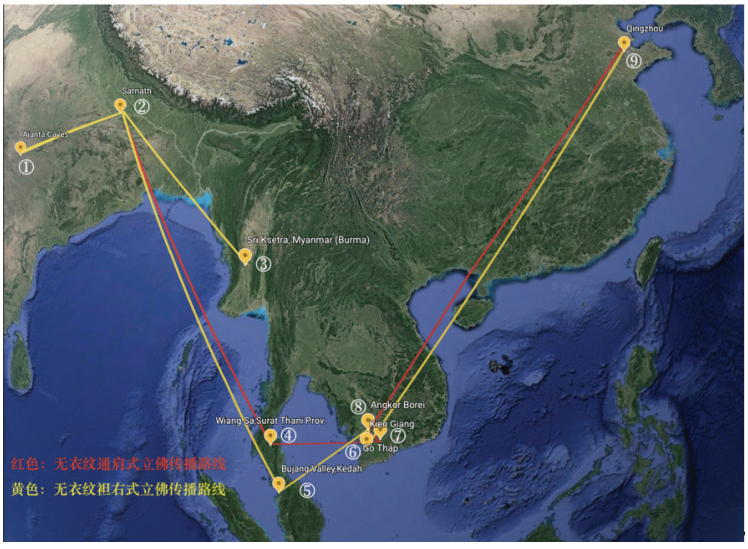


Figure 10. The schematic diagram of transmission routes of standing Buddha statues with diaphanous robes (type A and type C). ① Ajanta Caves, India; ② Sarnath, India; ③ Sri Ksetre, Myanmar; ④ Wiang Sa, Surat Thani Prov., Malay Peninsula; ⑤ Bujang valley, Kedah, Malay Peninsula; ⑥ Nen Chua, Kien Giang Prov., Southern Vietnam; ⑦ Mekong Delta; ⑧ Vat Romlok Site, Angkor Borei, Cambodia; ⑨ Longxing Temple Site, Qingzhou, Shandong Peninsula, China; Red lines: transmission route of type A statues; yellow lines: transmission routes of type C statues.

3. The Buddhist Monks Travelling Routes from India, through Southeast Asia, to North China in Historical Records

As discussed above, the main transit areas of the eastward transmission routes of the two types of standing Buddha statues with diaphanous robes in Southeast Asia around the 5th to 7th century were the north-central Malay Peninsula and the Mekong Delta. No later than the mid-6th century, these types of statues had reached China and had a direct impact on the carved-in-the-round standing Buddha statues of Qingzhou. However, there are few records of direct Buddhist exchange between India, Southeast Asia and North China during the period of the late Northern Dynasties (the first half of the 6th century). Fortunately, a record of monks from Ko-ying (*歌營*) who came to Luoyang through Southeast Asia can provide us with some clues. In volume four of *Lo-yang ch'ieh-lan chi* (A Record of Buddhist Monasteries in Lo-yang, *洛陽伽藍記*) (547), it is stated that:

> Yongming (永明) Temple, built by the Emperor Xuanwu (宣武) of Northern Wei, is in the east of Dajue (大覺) Temple. At that time, Buddhism flourished in Capital Luoyang (洛陽), which attracted monks from other countries, so the Emperor Xuanwu built this temple as the resting place for the monks. To the south of China, there is Ko-ying (歌營), which is far away from Luoyang and never had interaction with China before; during the Han Dynasty and the Wei Dynasty, there were no visitors from Ko-ying. Until now, a monk named Putibotuo (菩提拔陀, Bodhibhadra) from Ko-ying has come to China, himself says that after journeying northwards from Ko-ying for one month I reached Kou-chih (勾稚). After travelling northwards for eleven days I reached the Dian-sun (典孫). From Dian-sun I voyaged northwards for thirty days, when I reached Fu-nan (扶南). Fu-nan has a vast territory of five thousand miles and is the most powerful among kingdoms in the south of China . . . . . After travelling northwards from Fu-nan for a month, I reached Lin-yi (林邑). From Lin-yi, I arrived at the Southern Liang. Bodhibhadra reached Yangzhou (揚州) and stayed thhere for more than a year, and then he travelled together with Farong (法融, a monk from Yangzhou) to Luoyang. (Yang 2018, pp. 248–49)

Bodhibhadra was a native of Ko-ying (歌營), passing through Kou-chih (勾稚), Dian-sun (典孫), Fu-nan (扶南) and Lin-yi (林邑) to southern Liang and then went north from Yangzhou (揚州) to Luoyang (洛陽). There are four theories regarding the location of Ko-ying (also known as Jiaying 加營): South India (Fujita 2015b, pp. 557–59; Su 1951, pp. 18–24), the southern part of the Malay Peninsula (Pelliot 1995, pp. 155–56; Shi 2004, p. 41), the Nicobar islands (Cen 2004, pp. 124–25) and Sumatra and Java islands (Wolters 1967, pp. 55–58; 1979, pp. 1–32). This author believes South India to be the most plausible of these locations, based on the following arguments. The time when Buddhism was introduced to the present-day Indonesian Sumatra and Java islands was the late 5th century (Wang 2022, p. 62) and it was introduced to Peninsular Malaysia no earlier than the 5th–6th century (Yao 2014, p. 470; Wang 2022, p. 64). It was not until the middle of the 5th century that Buddhism flourished in Southeast Asia (Yao 2014, p. 471), thus it is not very logical to suggest that Bodhibhadra, a respected and famous monk, came from either the Indonesian Sumatra and Java islands or Malaysia. In addition, Bodhibhadra was familiar with the Huohuan (火浣) fabric, which is a local product of the Sitiao (斯調) kingdom, as well as its raw materials; thus, Sitiao was most likely located in the vicinity of Ko-ying. Sidiao can therefore be located in present-day Sri Lanka (Fujita 2015b, pp. 541–78), near South India. Moreover, there was no interaction between China and Ko-ying until the 5th century, and southern India was more difficult to reach than the three islands of Sumatra, Java and Malaysia. Therefore, South India is the most plausible theory regarding the location of Ko-ying. Dian-sun (典孫), also known as Tun-sun (頓遜), according to G. Schlegel, is Tenasserim, whose capital (now called Mergui) is ten miles from the sea, which is consistent with historical records and widely accepted (Schlegel 1899, p. 38; Pelliot 1903, p. 263; Cen 2004, pp. 126–28; Rao 1970, pp. 38–40). Its central region ranges from Mergui in Myanmar to the Isthmus of Kra (Chen 1992, pp. 58, 102–3), but it is still in the northern

part and does not reach the southern end of the Isthmus (Jacq-Hergoualc'h 2002, p. 103). Kou-chih, also known as Juli (拘利), is located on the west coast of the Malay Peninsula (Fujita 2015a, pp. 88–90; Hsu 1961, pp. 82–84)—more precisely, the Isthmus or Kedah (Cen 2004, pp. 121–25; Han 1991, p. 236). The central area of ancient Fu-nan is relatively clear and is generally considered to be the lower reaches of the Mekong River and the Mekong Delta (Pelliot 1903, pp. 285–86; Coedes 2018, p. 69; Chen 1992, p. 532). Lin-yi is roughly in the northeastern part of Vietnam (Chen 1992, pp. 355–57; Fan 2016, pp. 254–55, Note 7). During the Southern Liang, the Yangzhou refers to quite a large area, mainly the coastal region of Fujian and Zhejiang Province (Yang 2018, pp. 254–55, Note.9).

The above records describe Bodhibhadra's eastbound route in detail: starting in the Indian subcontinent and then passing through three important transit areas in Southeast Asia. The first is Guozhi, which is on the west coast of the north-central part of the Malay Peninsula (Kedah or slightly north of the Isthmus of Kra); the second is Tun-sun, the northern part of the Malay Peninsula (from Mergui to the north of the Isthmus of Kra); and the third is Fu-nan, which mainly refers to the lower reaches of the Mekong River and the Mekong Delta region. After this, the route passed north to northern Vietnam, then through the coast of Fujian and Zhejiang and finally entered the region of the Northern Dynasties. This route was roughly the same as the transmission paths of the type A and C standing Buddha statues from Southeast Asia to the Northern Dynasties (Figure 11).

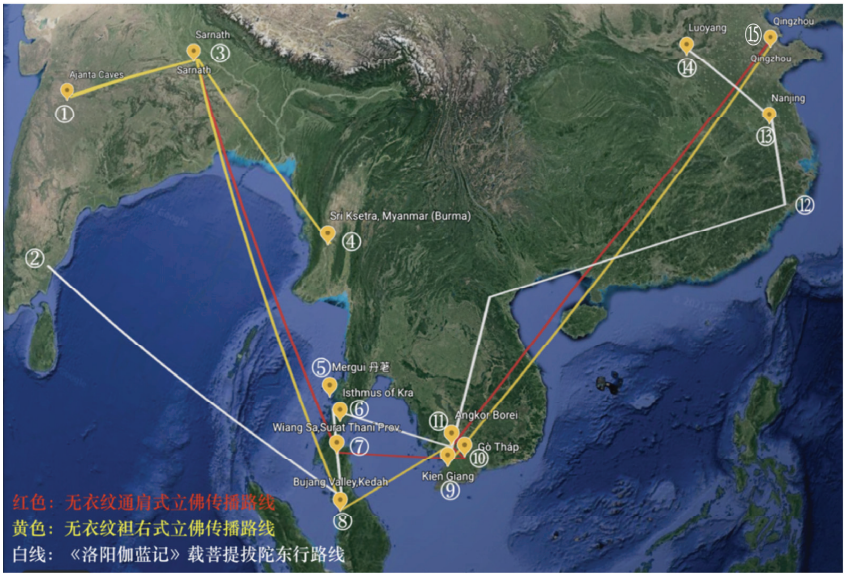


Figure 11. The schematic diagram of transmission routes of standing Buddha statues with diaphanous robes (type A and type C) and the route of Bodhibhadra. ① Ajanta Caves, India; ② Ko-ying, South India; ③ Sarnath, India; ④ Sri Ksetre, Myanmar; ⑤ The northernmost region of Tun-sun, Mergui, Myanmar; ⑥ The southernmost region of Tun-sun, Isthmus of Kra, Malay Peninsula; ⑦ Wiang Sa, Surat Thani Prov, Malay Peninsula; ⑧ Bujang Valley, Kedah, Malay Peninsula; ⑨ Nen Chua, Kien Giang Province, Vietnam; ⑩ Mekong Delta; ⑪ Vat Romlok Site, Angkor Borei, Cambodia; ⑫ Coastal region in Southeast China; ⑬ Nanjing, China (capital of Southern Liang); ⑭ Luoyang, China (capital of Northern Wei); ⑮ Longxing Temple Site, Qingzhou, Shandong Peninsula, China; Red lines: the transmission route of Type A; yellow lines: the transmission route of Type C; white lines: the route of Pu-Ti-Ba-Tuo.

The time when Bodhibhadra arrived in Luoyang was no earlier than the reign of Emperor Xuanwu (宣武帝) (500–515), when Yongming Temple was built in Luoyang, and was no later than the third year of Yongxi (永熙) (534), when the capital moved to Ye city in the

winter, so Bodhibhadra's journey would have taken place between 500 and 534, which is not too distant from the mid-6th century, the period between the Eastern Wei and Northern Qi Dynasties. Therefore, the styles of Southeast Asian standing Buddha statues may still have been partly introduced to the Northern Dynasties along this route, which may have directly led to the popularity of several foreign styles in Qingzhou statues. The above-mentioned transmission route of Buddhist art can be verified using historical records.

4. Occasionality and Inevitability—Transit and Destination of the Transmission Routes

As discussed above, the north-central part of the Malay Peninsula, the lower reaches of the Mekong River and the Mekong Delta region are important transit points for the transmission of foreign statue styles to Qingzhou. In previous studies, scholars have focused on the latter, that is, the transfer role of Fu-nan, while the exchanges of Buddhism and Buddhist art between the north-central Malay Peninsula and the Northern Dynasties has been less or unsubstantially studied. The excavation sites of the two types of standing Buddhas with diaphanous robes in the Malay Peninsula (Figure 10) are concentrated in the area between Kedah and the Isthmus of Kra, which roughly coincides with the location of Kou-chih and Tun-sun, the ancient kingdoms Bodhibhadra passed through on his journey to China (Figure 11). Therefore, in the 6th century, the north-central Malay Peninsula was an important transit point on the eastward sea-borne route that spread Buddhist art to China. Judging from the finds so far discovered, the style of wearing diaphanous robes draped over both shoulders that originated from India was first introduced to Southeast Asia though the north-central Malay Peninsula (Figure 3).

The transit role that the north-central Malay Peninsula played in the exchange of Buddhism and Buddhist art is related to the fact that this region was the hub of east–west trade at that time. Professor Chen Xujing discussed in detail the important geographical locations and operation patterns of the northern part of the Malay Peninsula in early Southeast Asian trade. He pointed out that the ships from the west first sailed to the west coast, and then travelers or traders would have taken the land route to the east coast, after which they sailed again from the east bank to the Indochina Peninsula and China. The land route, according to Professor Chen, extends from the Isthmus of Kra to Mergui and the direction is southeast to northwest (Chen 1992, p. 103). However, the Buddha statues are mainly found in the southern part of this area, and it can be inferred from the Bodhibhadra's journey that the land route crossing the Indochina Peninsula would have run from the southwest to the northeast, and therefore may not be the same route discussed by Professor Chen. French scholar Michel Jacq-Hergoualc'h suggested four detailed trade routes across the Malay Peninsula (Jacq-Hergoualc'h 2002, pp. 44–50), two of which are located in the north-central Malay Peninsula and clearly run from the southwest to the northeast: the Ranong-Kraburi to Chumphon route and Kedah to Pattani route. In the area between these two routes, standing Buddha statues with diaphanous robes draped over both shoulders (Figure 3 (2)) and statues with diaphanous robes covering only the left shoulder (Figure 7 (1)) from the early 6th century have been excavated. Therefore, the transmission route of Indian Buddhist art to the Malay Peninsula may have passed through one, or specific sections, of the above two routes.

The transmission route of Buddhist art reveals that in the north-central Malay Peninsula, the sea-to-land transportation mode may have lasted later than previously realized. It was previously believed that, from the 4th to the 5th century onwards, on the route from India to China, the statues of the Isthmus of Kra in the northern part of the Malay Peninsula were diminished and the trading route was changed to bypass the Strait of Malacca to reach the western edge of the Java Sea and sail along the port of Sumatra to China (Hall 1985, p. 78; Chen 1992, pp. 104–6). However, the transmission of Southeast Asian Buddhist art to the Northern Dynasties indicates that by the middle of the 6th century at the latest, the land routes on the Malay Peninsula may have still played an important part in the sea-borne exchange from India to China.

It is necessary to explain that before the middle of the 6th century, sea-to-land transportation and the status of the Malay peninsula as a traffic artery were caused by the limitations of shipbuilding and marine technology. Such transportation modes and the resulting key positions of this region are generally believed to have been roughly formed in the Han Dynasty when the ships were small and simple in structure and seamanship was not advanced enough to sail across the ocean, only allowing voyages along or close to the shore (Chen 1992, pp. 98–99, 102–4). The journey from Fu-nan to Tianzhu (天竺) during the Three Kingdoms (Wu State) period still passed this way (Yao 2020, p. 883). The north-central Malay Peninsula is relatively narrow, which leads to a relatively short transportation distance. Therefore, it was the safest and most efficient route for ships from South Asia to go ashore on the west coast of the Malay Peninsula, travel by land to the east coast and then enter the sea at the Gulf of Siam, and vice versa. The north-central Malay Peninsula thus became a key point for east–west traffic, and thus, the eastward coastal transmission route of Buddhist art in the 6th century may have passed through this region.

Standing Buddha statues of the Qingzhou style with thin and tight-fitting robes that cling to the outlines of the body appeared around the time of the Eastern Wei Dynasty (534–550) and the Northern Qi Dynasty (550–577), which are directly influenced by Southeast Asian statues and display a style not found in statues of the Southern Dynasties (Yao 2005, pp. 320–37). It would appear that when reaching China, Southeast Asian statues bypassed the Southern Dynasties. However, whether from the historical records or the Buddha statues found so far, Southeast Asian Buddhism and Buddhist art, represented by Fu-nan, can be seen to have had frequent exchange with the Southern Liang Dynasty. In the early and middle periods of the Southern Liang Dynasty, the Buddhism and Buddhist art exchanges between Fu-nan and the Southern Dynasties were the most prosperous, during which Buddhist art of the Southern Dynasties even transmitted back to the lower reaches of the Mekong River and the Mekong Delta area (Yao 2016, pp. 269–97). During Bodhibhadra's journey to the capital of the Northern Wei Dynasty, he also crossed regions governed by the Southern Liang Dynasty. Moreover, after the rule of the Southern Liang Dynasty ended, the tribute from Southeast Asian kingdoms and exchange of monks between Southeast Asia and the Southern Dynasties continued until the Southern Chen Dynasty (557–589), as recorded in historical documents (Daoxuan 2014, p. 22; Fei, p. 88b; Jian 2001, pp. 67–68). Therefore, it was quite unusual that in the middle of the 6th century, the style in which these types of Southeast Asian Buddha statues were carved were transmitted directly to Qingzhou, if the ships from Southeast Asia arrived in China through the ports in Shandong rather than the ones in the South. The reasons for such a change will be discussed below.

The author believes that this is related to the three events that occurred during the Southern Liang Dynasty: the siege of Jiankang (建康, the capital of the Southern Liang, now Nanjing) by Houjing (侯景) in the middle of the 6th century (548–549); the Great Famine in the south Yangtze River region (江南) (550) and the attack and subsequent looting of the Jingzhou Army (荊州軍) (552) (Wang 2003, pp. 413–26; Li 2008a, pp. 1538, 2006, 2009, 2014; Sima 2011, pp. 5018, 5032, 5045; Yao 2020, p. 628). These three successive disasters almost caused the overthrow of the Liang Dynasty, dealt a huge blow to the capital city Jiankang and its economy, destroyed the environment needed for Buddhism and Buddhist art exchange and greatly weakened Jiankang's role as an important port city in the maritime trade with Southeast Asia. During the twenty years from 542 to 562, there is only one record of Southeast Asian kingdoms sending envoys to the Southern Dynasties. This is in great contrast to the situation during the early reign of Emperor Wudi (502–549), in which there was frequent tribute and envoys sent from Southeast Asia, as well as the exchange of Buddhism and its art. When the Southern Liang Dynasty was at its weakest, the powerful period of Eastern Wei Dynasty began (534–550) (Sima 2011, p. 5033). Moreover, the Gao family, who were actually in power during the Eastern Wei and the Northern Qi Dynasties (550–577), attached great importance to Buddhism, and the establishment of the Northern Qi Dynasty was also closely related to Buddhism (Sun 2019, pp. 33–38; Li 2014, p. 359,

Note 1; Daoxuan 2014, p. 261). Thus, around the middle of the 6th century, ships from Southeast Asia probably bypassed Jiankang and sailed northward to Shandong, bringing with them three types of locally adapted statues that originated from India, which directly led to the emergence of new statue styles in Zhucheng, Linqu and Qingzhou.

However, the carved-in-the-round standing Buddha statues of the Qingzhou style, which were deeply influenced by foreign styles, were short lived in the history of Buddhist art. As for the reasons, on the one hand, Fu-nan, the Southeast Asian country that had the closest interaction with Chinese Buddhist art, gradually declined in the second half of the 6th century (Chen 1992, pp. 106, 694). During the Chen Dynasty (557–589), the import of Buddhism and Buddhist art from Fu-nan were not interrupted but was far less frequent than before (Yao 2016, p. 281), and by the time of the Chen Dynasty, there had been a significant decrease in the number of envoys from Southeast Asian kingdoms (Yao 1972, p. 115; Jian 2001, pp. 67–68), which naturally reduced the influence of Southeast Asian Buddhist art in China. On the other hand, and more importantly, in the middle and late period of the Northern Qi Dynasty (about 560–577), Southeast Asian ships no longer went north, which interrupted the import of the foreign standing Buddha statues. During this time, the Southeast Asian ships only sailed to the Southern Dynasties and no longer went north, which can be corroborated by a record in the *Beiqi shu* (The Book of Northern Qi *北齊書*) (636). It states that Wei Shou (魏收), a minister who served in the Qi government, was convicted for privately seeking the "Kunlun" rare treasure. In the second year of Heqing 河清 (563), Wei Shou asked one of his retainers to travel together with Feng Xiaoyan (封孝琰), the Northern Qi ambassador, to the territories of the Southern Chen Dynasty, where the "Kunlun" ships (昆侖舶) carrying exotic cargo arrived, and the retainer purchased dozens of priceless objects on behalf of Wei Shou, resulting in Wei being sentenced to exile: however, he paid his way out of punishment (Li 1972, p. 492; 2008b, p. 2035). Kunlun (昆侖) is generally considered to refer to the south of Lin-yi, the former Fu-nan area (Zhang 1975, pp. 5270–71; Cai 2018, pp. 74–75). If the Kunlun ships still went north to the Qi Dynasty, Wei Shou would not need to risk exile in order to obtain these rare goods. Therefore, a more reasonable explanation is that after the second half of the 6th century, Southeast Asian ships seldom visited the region of the Qi Dynasty. As a result, Southeast Asian Buddhist art no longer had a direct impact on the creation of Buddha statues of Qingzhou and its surrounding areas. The interruption of its source led to the short life of the carved-in-the-round standing Buddha statues of the Qingzhou style.

5. Conclusions

This article mainly discusses the transmission route of the foreign styles seen in Buddha statues of Qingzhou carved in-the-round in the 6th century. Although the origin of the three foreign styles can be traced to the Indian subcontinent, the Qingzhou Buddha images seem to incorporate local modifications found in the Southeast Asian counterparts. By examining the three most common types of standing Buddhas in Southeast Asia and their dates and distribution, as well as the transit area of the eastward transmission route, it is revealed that from the 5th to the 7th century, there was a relatively high degree of overlap of the transmission routes of the two types of statues with diaphanous robes, which is also quite consistent with the Southeast Asian section of Bodhibhadra's route to Luoyang from the east in the early 6th century. Combined with the study of trade routes in Southeast Asia, it can be inferred that during this period, the north-central Malay Peninsula held a key position in the eastward transmission route of Buddhist art via the sea. The reasons why Southeast Asia ships abandoned Jiankang and went north to Qingzhou appear to be the three catastrophes at the end of the Southern Liang Dynasty. The short life of the foreign-style standing Buddha statues of Qingzhou may be due to the fact that the ships from Southeast Asia were no longer visiting the north in the later period, consequently resulting in the interruption of the import and the direct influence of foreign Buddhist art.

It should be noted that the transmission route based on excavated materials and historical documents may only be one of the main paths of maritime Buddhist exchange be-

tween India and China at that time, since the actual transmission of Buddhist art is more complicated. The variety of types of Qingzhou-style standing Buddha statues indicates that during one or more of the several direct imports of Southeast Asian statues, multiple styles were introduced simultaneously. As discussed above, several types of standing Buddha statues originating from India underwent local adaptation and fusion in Southeast Asia, and their transmission might have occurred along various routes, in segmented paths and over multiple instances.

Author Contributions: Conceptualization, S.M.; methodology, S.M.; software, P.L.; validation, S.M. and P.L.; formal analysis, S.M.; investigation, S.M. and P.L.; resources, S.M.; data curation, S.M. and P.L.; writing—original draft preparation, S.M.; writing—review and editing, P.L.; visualization, S.M. and P.L.; supervision, S.M.; project administration, S.M. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable for this study not involving humans or animals.

Informed Consent Statement: Not applicable for studies not involving humans.

Data Availability Statement: Data sharing not applicable. No new data were created or analyzed in this study.

Conflicts of Interest: The authors declare no conflict of interest.

Notes

[1] Fu-Nan kingdom existed from the 1st to mid-7th century. In the second half of the sixth century, Fu-Nan was defeated by Chenla (6th century to early-15th century) (Chen 1992, pp. 690–715) and lost control of part of its territory. Nevertheless, the rule of Fu-Nan did not end, as Chinese historical records reveal that during the period of Wude 武德 (618–626) and Zhenguan 貞觀 (627–649), Fu-Nan still sent envoys and tributes to the Tang Dynasty (Du 1988, p. 5094; Ouyang 1975, p. 6301). Therefore, Fu-Nan lasted until the mid-7th century (Yao 2016, p. 278, note. 32). However, this defeat forced Fu-Nan to move its capital from Vyadhapura to Naravaranagara, which, according to Coedes, is the present-day site of Angkor Borei (Coedes 2018, p. 118).

[2] Some scholars believe the date of the standing Buddha statue found at the Vat Romlok site (Angkor Borei, Cambodia) to be 7th century (Jessup and Zephir 1997, pp. 146–47), while others argue that it is 6th century (Kang 2013, p. 24). The characteristics of the Vat Romlok statue are the graceful hip-swayed stance (a gentle version of the Indian Tribhaṅga); the left knee slightly bent; the posture of the arms varied, as suggested by the different forward angles of the two forearms; and the not-very-thick lips. The body of the Vat Romlok Buddha is unlike the Wiang Sa Buddha, which is dated to between the late 5th century to the first half of 6th century and is full of motion, and its facial features and posture also display significant differences to a 7th century standing Buddha that was also found in Cambodia. The Buddha of Tuol Preah Theat has seventh-century inscription on its back (Jessup and Zephir 1997, pp. 149–50). It has locked knees and the rigid stance is quite obvious, and it has thicker lips. Such features originate from the Dvaravati Kingdom in nearby Thailand. The earliest Dvaravati Buddhas date to about the 6th century, but production began primarily in the 7th century (Brown 2014, p. 190). The 7th or perhaps the 8th century is a time when Dvaravati art had already undergone massive stylistic influence (Griswold 1966, p. 64). Based on the above argument, it can be inferred that the Vat Romlok standing Buddha dates from the second half of the 6th century.

References

Boisselier, Jean. 1989. *Trends in Khmer Art*. New York: Cornell Southeast Asia Program Publications.

Bopearachchi, Osmund. 2012. Andhra-Tamilnadu and Sri Lanka: Early Buddhist Sculptures of Sri Lanka. *New Dimensions of Tamil Epigraphy, Cre-A* 2012: 49–68.

Brown, Robert L. 2014. Dvāravati Sculpture. In *Lost kingdoms: Hindu-Buddhist sculpture of early Southeast Asia*. New York: The Metropolitan Museum of Art, pp. 189–91.

Cai, Hongsheng 蔡鴻生. 2018. *Guangzhou Haishi Lu* 廣州海事錄. Beijing: Shangwu Yinshuguan.

Cen, Zhongmian 岑仲勉. 2004. Nanhai Kunlunyu Kunlunshan Zhi Zuichu Yiming ji Fujin Zhuguo 南海昆侖域昆侖山之最初譯名及附近諸國. In *Zhongwai Shidi Kaozheng· Shang Ce* 中外史地考證· 上冊. Beijing: Zhonghua Shuju, pp. 115–50.

Chen, Xujing 陳序經. 1992. *Chen Xujing Dongnanya Gushi Yanjiu Heji · Shang Volume* 陳序經東南亞古史研究合集· 上卷. Taibei: The Shangwu Yinshuguan.

China Cultural Relics Exchange Center 中國文物交流中心. 2007. *Gudai Yindu Kuibao (Treasures of Ancient India)* 古代印度瑰寶. Beijing: Beijing Meishu Sheying Chubansh.

Coedes, George 喬治· 賽代斯. 2018. *Dongnanya de Yinduhua Guojia* 東南亞的印度化國家. Beijing: The Shangwu Yinshuguan.

Daoxuan 道宣 (596–667). 2014. *Xu Gaozeng Zhuan (volume one)* 續高僧傳(卷一). Beijing: Zhonghua Shuju.

Dŏng, Chú biên. 2022. *Văn Hóa Óc Eo—Những phát hiện mới khảo cổ học tại di tích Óc Eo—Ba Thê và Nền Chùa 2017–2020*. Hà Nôi: Nhà Xuất bản Khoa học xã hội.

Du, You 杜佑 (735–812). 1988. *Tong Dian* 通典. Beijing: Zhonghua Shuju.

Du, Zaizhong 杜在忠. 1994. Shandong Zhucheng Fojiao Shizaoxiang 山東諸城佛教石造像. *Kaogu Xuebao* 考古學報 2: 231–62.

Fan, Di'an 範迪安, ed. 2016. *Posui yu Juhe: Qingzhou Longxingsi Fojiao Zaoxiang* 破碎與聚合: 青州龍興寺佛教造像. Shijiazhuang: Hebei Meishu Chubanshe.

Fei, Zhangfang 費長房 (The Sui Dynasty (581–619)). Lidai Sanbao Ji (volume nine) 歷代三寶記 (卷九). In *Taishō shinshū daizōkyō* 大正新脩大藏經. Chinese Buddhist Electronic Text Association (CBETA) Edition, Vol. 49. No.2034. Available online: https://cbetaonline.dila.edu.tw/zh/T49n2034_p0088b28?q={\simsun◎}&l=0088b28&near_word=&kwic_around=30 (accessed on 3 January 2023).

Feng, Chengjun 馮承鈞. 2017. *Zhongguo Nanyang Jiaotong Shi* 中國南洋交通史. Beijing: The Shangwu Yinshuguan.

Fujita, Toyohachi 藤田豐八. 2015a. Qianhan Shidai Xinan Haishang Jiaotong zhi Jilu 前漢時代西南海上交通之記錄. In *Zhongguo Nanhai Gudai Jiaotong Congkao· Shangce* 中國南海古代交通叢考· 上冊. Taiyuan: Shanxi Renming Chubanshe, pp. 83–117.

Fujita, Toyohachi 藤田豐八. 2015b. Yetiao Sitiao ji Sihe Kao 葉調斯調及私訶條考. In *Zhongguo Nanhai Gudai Jiaotong Congkao· Xiace* 中國南海古代交通叢考· 下冊. Taiyuan: Shanxi Renming Chubanshe, pp. 541–78.

Giteau, Madeleine. 1965. *Khmer Sculpture and the Angkor Civilization*. London: Thames and Hudson.

Griswold, Alexander B. 1966. Imported Images and the Nature of Copying in the Art of Siam. *Artibus Asiae. Supplementum* 23: 37–73. [CrossRef]

Guy, John. 2014. *Lost Kingdoms: Hindu-Buddhist Sculpture of Early Southeast Asia*. New York: The Metropolitan Museum of Art.

Hall, Kenneth. 1985. *Maritime Trade and State Development in Early Southeast Asia*. Honolulu: University of Hawaii Press.

Han, Zhenhua 韓振華. 1991. Weijing Nanbeichao Shiqi Haishang Sizhou Zhi Lu de Hangxian Yanjiu—Jianlun Hengyue Tainan Malai Bandao de Luxian 魏晉南北朝時期海上絲綢之路的航線研究— 兼論橫越泰南、馬來半島的路線. In *China and the Maritime Silk Route: UNESCO Quanzhou International Seminar on China and the Maritime Routes of the Silk Roads* 中國與海上絲綢之路聯合國教科文組織海上絲綢之路綜合考察泉州國際學術討論會論文集. Edited by Quanzhou International Seminar on China and the Maritime Routes of the Silk Roads Organization Committee 聯合國教科文組織海上絲綢之路綜合考察泉州 國際學術討論會組織委員會. Fuzhou: Fujian Renmin Chubanshe, pp. 219–68.

Howard, Angela F. 2008. Pluralism of Styles in Sixth Century China: A Reaffirmation of Indian Models. *Ars Orientalis* 35: 67–94.

Hsu, Yun Tsiao 許雲樵. 1961. *Malaiya Shi· Shang Ce* 馬來亞史· 上冊. Singapore: Youth Book Co.

Huntington, Susan L. 1985. *The art of Ancient India—Buddhist, Hindu, Jain*. New York: Weatherhill.

Jacq-Hergoualc'h, Michel. 2002. *The Malay Peninsula: Crossroads of the Maritime Silk Road (100 BC–1300 AD)*. Leiden: Brill.

Jeong, Rye-Gyeong 鄭禮京. 1999. Imitation Styles and Deformation Styles of Chinese Buddhist Statues in the Transitional Period: Focusing on Standing Nyorai Statues 過渡期の中國仏像にみられる模倣様式と変形様式— 如來立像を中心に. *Buddhist Art* 仏教芸術 247: 108–23.

Jessup, Helen Ibbitson, and Thierry Zephir, eds. 1997. *Sculpture of Angkor and Ancient Cambodia: Millennium of Glory*. Washington, DC: National Gallery of Art.

Jian, Ligui 簡鸝妫. 2001. Beiji Qingzhou Diqu Fojiao Shizaoxiang Fengge Wenti Yanjiu 北齊青州地區佛教石造像風格問題研究. Master's Thesis, Tainan National University of the Arts, Tainan, Taiwan.

Jin, Weinuo 金維諾. 1999a. Jianlun Qingzhou Chutu Zaoxiang de Yishu Fengfan 簡論青州出土造像的藝術風範. In *Shengshi Chongguan—Shandong Qingzhou Longxingsi Chutu Fojiao Shike Zaoxiang Jinping* 盛世重光— 山東青州龍興寺出土佛教石刻造像精品. Edited by The National Museum of Chinese History 中國歷史博物館. Beijing: Wenwu Chubanshe, pp. 13–22.

Jin, Weinuo 金維諾. 1999b. Nanliang yu Beiji Zaoxiang de Chengjiu yu Yingxiang 南梁與北齊造像的成就與影響. *Yishushi Yanjiu* 藝術史研究 1: 1–11.

Kang, Heejung. 2013. The Spread of Sarnath-Style Buddha Images in Southeast Asia and Shandong, China, by the Sea Route. *KEMANUSIAAN: The Asian Journal of Humanities* 2: 39–60.

Li, Baiyao 李百藥 (563–648). 1972. *Beiqi Shu* 北齊書. Beijing: Zhonghua Shuju.

Li, Chongfeng 李崇峰. 2014. Guanyu Gushan Shiku Zhong de Gaohuan Jiuxue 關於鼓山石窟中的高歡柩穴. In *Fojiao Kaogu—Cong Yindu dao Zhongguo (Shang Ce)* 佛教考古— 從印度到中國(上冊). Shanghai: Shanghai Guji Chubanshe, pp. 357–65.

Li, Yanshou 李延壽 (Tang dynasty). 2008a. *Nan Shi* 南史. Beijing: Zhonghua Shuju.

Li, Yanshou 李延壽 (Tang dynasty). 2008b. *Bei Shi* 北史. Beijing: Zhonghua Shuju.

Malleret, Louis. 1963. *L'archéologie du delta du Mékong: Tome Quatrième, Le Cisbassac*. Paris: PEFEO.

Meng, Shuangqiao 孟霜橋. 2021. Beiqi Fojiao Fengge Yangshi Laiyuan Yanjiu—Yi Hebei, ShangdongJiaocang Cailiao wei Zhongxin (The study on Origin of Buddha statues styles of the Northern Qi—Centering around Findings Excavated from the Hoard Pits in Hebei and Shandong Province) 北齊佛像風格樣式來源研究— 以河北, 山東窖藏材料為中心. Doctor's thesis, Sun Yat-sen University, Guangzhou, China.

Ouyang, Xiu 歐陽修 (1007–1072). 1975. *Xin Tang Shu* 新唐書. Beijing: Zhonghua Shuju.

Pelliot, Paul. 1903. Le Fou-nan. *Bulletin de l'École française d'Extrême-Orient* 3: 248–303. [CrossRef]

Pelliot, Paul 伯希和. 1995. Guanyu Yuenan Bandao de Jitiao Zhongguo Shiwen 關於越南半島的幾條中國史文. In *Xiyu Nanhai Shidi Kaozheng Yicong (Volume 1)* 西域南海史地考證譯叢 *(*第一卷*)*. Translated by Chengjun Feng 馮承鈞. Beijing: Shangwu Yinshuju, pp. 149–64.
Qingzhou Museum 青州市博物館, ed. 2014. *Qingzhou Longxingsi Fujiao Zaoxiao Yishu* 青州龍興寺佛教造像藝術. Jinan: Shangdong Art Publishing House.
Rao, Zongyi 饒宗頤. 1970. <Taiqing Jinye Shendan Jing > Juan Xia yu Nanhai Dili 〈 太清金液神丹經〉卷下與南海地理. *Zhongguo Wenhua Yanjiusuo Xuebao* 中國文化研究所學報 1: 31–76.
Ren, Jiyu 任繼愈, ed. 2015. *Zhongguo Fojiao Shi· Volume three* 中國佛教史· 第三卷. Beijing: Zhongguo Shehui Kexue Chubanshe.
Ren, Rixin 任日新. 1990. Shandong Zhucheng Faxian Beichao Zaoxiang 山東諸城發現北朝造像. *Kaogu* 考古 8: 717–26.
Schlegel, G. 1899. Geographical Notes. VII. Tun-Sun 頓遜 or Tian-Sun 典遜 Tĕnasserim or Tānah-Sāri. *T'oung Pao* 1: 33–38. [CrossRef]
Shandong Linqu Shanwang Paleontological Fossil Museum 山東臨朐山旺古生物化石博物館, ed. 2010. *Linqu Fojiao Zaoxiang Yishu* 臨朐佛教造像藝術. Beijing: Kexue Chubanshe.
Shi, Yuntao 石雲濤. 2004. 3–6 Shiji Zhong Xi Haishang Hangxian de Bianhua 3–6 世紀中西海上航線的變化. *Haijiaoshi Yanjiu* 海交史研究 2: 35–48.
Sima, Guang 司馬光 (1019–1086). 2011. *Zizhi Tongjian* 資治通鑒. Beijing: Zhonghua Shuju.
Soper, Alexander C. 1960. South Chinese influence on the Buddhist art of the Six Dynasties period. *Bulletin of the Museum of Far Eastern Antiquities* 32: 47–112.
Su, jiqing 蘇繼廎. 1951. Jiayingguo Kao 加營國考. *Nanyang Xuebao* 南洋學報 1: 18–24.
Sun, Yinggang 孫英剛. 2019. Bufa Yanni de Beiji Huangdi: Zhonggu Randeng Fo Shouji de Zhengzhi Yihan 布發掩泥的北齊皇帝: 中古燃燈佛授記的政治意涵. *Lishi Yanjiu* 歷史研究 6: 33–38.
The National Museum of Chinese History 中國歷史博物館. 1999. *Shengshi Chongguan—Shandong Qingzhou Longxingsi Chutu Fojiao Shike Zaoxiang Jinping* 盛世重光— 山東青州龍興寺出土佛教石刻造像精品. Beijing: Wenwu Chubanshe.
Wang, Bangwei 王邦維. 2022. *Fojiao Shi Liu Jiang* 佛教史六講. Beijing: The Shangwu Yinshuguan.
Wang, Zhongluo 王仲犖. 2003. *Weijing Nanbei Chao Shi* 魏晉南北朝史. Shanghai: The Shangwu Yinshuguan.
Wolters, Oliver William. 1967. *Early Indonesian Commerce: A Study of the Origins of Srivijaya*. Ithaca: Cornell University Press.
Wolters, Oliver William. 1979. Studying Śrīvijaya. *Journal of the Malaysian Branch of the Royal Asiatic Society* 2: 1–32.
Wu, Xuling 吳虛領. 2010. *Dongnanya Meishu* 東南亞美術. Beijing: China Remin University Press.
Xia, Mingcai 夏名采. 1998. Qingzhou Longxingsi Fojiao Zaoxiang Jiaocang Qingli Jianbao 青州龍興寺佛教造像窖藏清理簡報. *Wenwu* 文物 2: 4–15.
Yagi, Haruo 八木春生. 2013. *The Transformation of Chinese Buddhism: Late Southern and Northern Dynasties and the Sui Dynasty* 中國仏教造像の変容— 南北朝後期および隋時代. Kyoto: Hozokan.
Yang, Xuanzhi 楊衒之 (the Northern Wei dynasty). 2018. *Luoyang Qielan Ji Jiaozhu* 洛陽伽藍記校注. Annotated by Xiangyong Fan 範祥雍. Shanghai: Shanghai Classics Publishing House.
Yao, Chongxin 姚崇新. 2005. Qingzhou Beiji Shizaoxiang Kaocha 青州北齊石造像考察. *Yishushi Yanjiu* 藝術史研究 7: 309–42.
Yao, Chongxin 姚崇新. 2014. Fojiao Haidao Chuanru Shuo, Dian Mian Dao Chuanru Shuo Bianzheng 佛教海道傳入說, 滇緬道傳入說辯證. In *Xiyu Kaogo, Shidi, Yuyan Yanjiu Xinshiye: Huang Wenbi Zhong Rui Xibei Kaochatuan Guoji Xueshu Yantaohui Lunwenji* 西域考古· 史地· 語言研究新視野*:* 黃文弼中瑞西北考查團國際學術研討會論文集. Edited by Xinjiang Rong 榮新江 and Yuqi Zhu 朱玉麒. Beijing: Kexue Chubanshe, pp. 459–96.
Yao, Chongxi 姚崇新. 2016. Shilun Fu-nan yu Nanchao de Fojiao Yishu Jiaoliu—Cong Dongnanya Chutu de Nanchao Fojiao Zaoxiang Tanqi 試論扶南與南朝的佛教藝術交流— 從東南亞出土的南朝佛教造像談起. *Yishushi Yanjiu* 藝術史研究 18: 269–97.
Yao, Silian 姚思廉 (564–637). 1972. *Chen Shu* 陳書. Beijing: Zhonghua Shuju.
Yao, Silian 姚思廉 (564–637). 2020. *Liang Shu* 梁書. Beijing: Zhonghua Shuju.
Zhang, Zhaoyuan 張昭遠 (894–972). 1975. *Jiu Tang Shu* 舊唐書. Beijing: Zhonghua Shuju.
Zhao, Ling 趙玲. 2016. Lun Gu Yindu Foxiang de Haishang Chuanbo Zhi Lu 論古印度佛像的海上傳播之路. In *Shanhe Zhi Sheng: 'Zhongguo Fojiao yu Haishang Sichou Zhi Lu' Yantaohui Lunwenji Shangce* 禪和之聲: " 中國佛教與海上絲綢之路" 研討會論文集上冊. Edited by Sheng Ming 明生. Beijing: Zongjiao Wenhua Chubanshe, pp. 33–46.
Zhao, Ling 趙玲. 2018. Qingzhou Beiji Foxiang Yuanyuan de Xin Sikao 青州北齊佛像淵源的新思考. *Nanjing Yishu Xueyuan Xuebao (Meishu yu Sheji)* 南京藝術學院學報 *(*美術與設計*)* 4: 92–98.

religions

MDPI

Article

The Evolution of the Spatial Distribution Pattern of Mosques in the Kashgar Region from 1955 to 2004

Shangguang Wu [1], Yexi Zhong [1,*], Shuming Bao [2], Wenhui Wang [1] and Tanyue Nie [3]

[1] School of Geography and Environment, Jiangxi Normal University, Nanchang 330022, China
[2] China Data Center, University of Michigan, Ann Arbor, MI 48106, USA
[3] School of Computer Information and Engineering, Jiangxi Normal University, Nanchang 330022, China
* Correspondence: zhongyexi@126.com

Abstract: The spatial differences in the distribution of mosques reflect to a certain extent the diversity of the interaction between natural and human elements and Islamic beliefs in different geographic spaces. The Kashgar region of Xinjiang is one of the most developed regions of Islamic culture in China, its dominant religion is Islam, and the survival of Islamic culture in the region has a long history. The development of Islam in the region, after the founding of the People's Republic of China, was influenced by the religious policy of Chinese Socialism, and the spatial distribution of mosques in the region has changed significantly. However, the distribution pattern of mosques in the spatial features of the region that had been especially indicated by the transformations in religious practice on the development of Islam impacted by geographical conditions and social factors has been less explored. Based on the Chinese Religious Digital Map dataset provided by the China Information Center at the University of Michigan, mathematical statistics and spatial analyses are used to analyze the spatial distribution pattern of mosques in the Kashgar region from 1955 to 2004, and the causes of the pattern characteristics in the context of the historical background of the study period. The results show that, during the study period, the spatial clustering of mosques occurred mainly in the northwestern and central parts of the Kashgar region. In all districts and counties, the number of mosques had increased and there was a growing gap in the number of mosques. Islam in the area had been well developed and the trend of spatially concentrated distribution of mosques had been increasing. The mosques in the region are mostly clustered in areas with gentle terrain, rivers and a dense population. In terms of the causes affecting the spatial distribution pattern of mosques in the Kashgar region, geographical conditions and population were the underlying factors that set the basic pattern for the location of mosques. In addition, the different effects of social factors, such as the improvement of productivity, the administrative system, religious management policies, and the historical background on the development of Islam in the area had led to a variation in the development of Islam, thus causing changes in the spatial distribution pattern of mosques in the area. In the period from 1976 to 1992, for example, the end of the Cultural Revolution and the shift in China's foreign policy had a very major impact on Islam so that during this period the spatial distribution pattern of mosques varied the most in the area. This research has implications for learning about the spread of Islam in the Kashgar region after the founding of the People's Republic of China, and the changes in the spatial distribution of mosques, and the causes of such variations.

Keywords: mosques; Kashgar region; spatial distribution pattern; spatial analysis; GIS

Citation: Wu, Shangguang, Yexi Zhong, Shuming Bao, Wenhui Wang, and Tanyue Nie. 2023. The Evolution of the Spatial Distribution Pattern of Mosques in the Kashgar Region from 1955 to 2004. *Religions* 14: 216. https://doi.org/10.3390/rel14020216

Academic Editor: Z. George Hong

Received: 23 November 2022
Revised: 14 January 2023
Accepted: 30 January 2023
Published: 6 February 2023

1. Introduction

The religious landscape is an intuitive reflection of religious culture in material or non-material phenomena (Yu 2011). Many entities' religious landscapes, such as religious shrines, places of worship, temples, churches, funeral places, mosques, etc., while carrying religious culture and playing a religious role, also reflect the spatial interaction between religious culture and natural and human environment through their location in the space,

and most intuitively reflect the interaction between spirituality and geographical space (Jordan and Domosh 1999; Peach 1999). In general, the interaction of religious landscape and space can be summarized in three forms. The influence of the characteristics of space on the layout of landscape; the influence of the religious function on the masses in space; and the ideological and cultural attributes embodied in the landscape giving new elements to space. (Dann 1976; Stump 1986). When people rely on the religious landscape for their religious activities, they have actually engaged in an exchange of beliefs and geographic space, which at this point becomes the carrier for the continuation and development of religion (Kong 2005; Brzozowski 2013).

As a spatial landscape, religious sites have been classified by scholars as "officially sacred sites" and "unofficially sacred sites" (Brace et al. 2006; Holloway 2003; Gokariksel 2009; Kong 2001). Official sacred sites, such as pilgrimage sites of various religions and clan shrines, carry a more formal religious function. It is generally accepted that the spatial distribution of those sites reflects the interaction between the sacred and the secular (Kong 2002, 2005; Preston 2002). Scholars have mostly approached the forms in which these interactions work from a religious, theoretical and philosophical perspective (Valins 2003; Campbell 2005; Preston 2002). With the intersection of the research paradigm of religion in geography, the content of the study of the geography of religion as a discipline was clearly identified in the 1980s (Sopher 1981). In recent years, spatial data on religion have often been used in geographic studies, and some religious studies have drawn on geographic research methods, with many developments in data-driven spatial perspectives on the study of religion emerging (Gregory 2003; Sunier 2013; Zhou 2022). Some scholars have explored the spatial evolution of religion and its causes based on the geographic information data of religious officially sacred sites (Song et al. 2016; Zhu et al. 2019; Jiang 2019; Liu and Wan 2022). Among the many research results, the spatial distribution of religious sites is often correlated to be closely integrated with the distribution of population, and the size of the population determines whether the religion can survive in its area (Xue et al. 2009, 2013; Lloyd 2012).

In China, the most populous country in the early 20th century, some results have been made in the study of the interaction between religious sites and space. Scholars have combined religious studies with spatial analysis to study different religions from a geographical perspective, exploring the divergence of religious development patterns in different regions. Many Chinese scholars have studied the religious environment of different periods and regions (Ma 2012; Zhong and Bao 2014; Bao et al. 2014; Liu and Wang 2022). Most of these studies are based on a macro perspective and provide an analysis of the layout of religion across China. In addition, Chinese research on theories of religion has been very fruitful in recent years, and scholars have combined methods from other disciplines to focus more on the social rather than the political significance of studies (Lu 2022; Zhang 2021).

However, at present, in Chinese academia, research on the theoretical aspects of religion still mostly focuses on the political and unifying role of religion in modern Chinese society and is accustomed to exploring how religion can better serve the development of the socialist political system from the perspective of macro governance (He and Wang 2021). Indeed, these theoretical studies had a positive effect on exploring how religions in China can better adapt to the political environment, but to a certain extent they neglected the positive interaction between religious development and regional development at the micro level, as well as the different development patterns of religions due to regional differences. Therefore, for conducting empirical studies on the historical changes and spatial and temporal evolution of religious sites on small scales such as counties, cities, and regions, Chinese scholars still need to further explore and study from a regional and geographic perspective based on reliable data and in the context of the times.

The Kashgar region is the most densely populated region of Muslims in China, and a typical region where Islam has adapted to the socialist system, either spontaneously or passively. In the process of continuous improvement of the socialist system, both

Islam, its followers, and mosques inevitably have to adapt to the development guidelines of the "Chinese-ized religion" (Khosravi 2019; Dai 2019). A study of the mosques in the region from a spatial perspective can provide further insight into the history of the development of Islam in the region. However, there are few relevant studies on the spatial distribution of mosques in this region, and the spatial and temporal evolution and causes of the development of contemporary mosques in the Kashgar region have not been explored. Therefore, this study will examine the changes in the spatial distribution of mosques in the Kashgar region from 1955 to 2004 based on the Chinese Religious Digital Map dataset provided by the China Information Center at the University of Michigan, using spatial analysis and statistical methods, and in the context of the relevant era.

2. Overview of the Study Area

The Kashgar region is located in the middle of Eurasia, southwest of the Xinjiang Uyghur Autonomous Region, China. As a major transportation route along the ancient Silk Road, the region has been a crossroads for exchanges between China and Central Asia since ancient times. The region has a rich and long history of culture, and many civilizations have emerged here. Islamic civilization was introduced to the Kashgar region in the middle of the 10th century A.D. The rulers of the Kara-Khan dynasty at that time made Islam the state religion, and Islam became the dominant religion of the region (Pa 2006).

In 1955, the People's Republic of China changed the jurisdiction of Xinjiang Province to the Xinjiang Uyghur Autonomous Region. In the same year, all counties in the Kashgar region were placed under the jurisdiction of the South Xinjiang Administrative Office, and religious affairs enjoyed a high degree of autonomy in jurisdictional governance within the region. The Kashgar region is one of the regions in China where the spread of Islam has continued for a long time, has a large influence, has a large religious population, and has the closest combination of religion and ethnicity. As a representative religious landscape of Islam, mosques are densely distributed in the region and play an important function in the religious and social life of the contemporary faithful. According to the administrative division of the People's Republic of China, the Kashgar region consists of 12 counties, including Kashgar, Payzawat, and Maralbexi, etc. In order to make the study area spatially complete, Tumxuk, which is managed by the Xinjiang Production and Construction Corps, is also included in the study area. Therefore, in this study, the Kashgar region was considered to have a total of 13 districts and counties, as shown in Figure 1. The basic geographical information of the study area is shown in Figure 2.

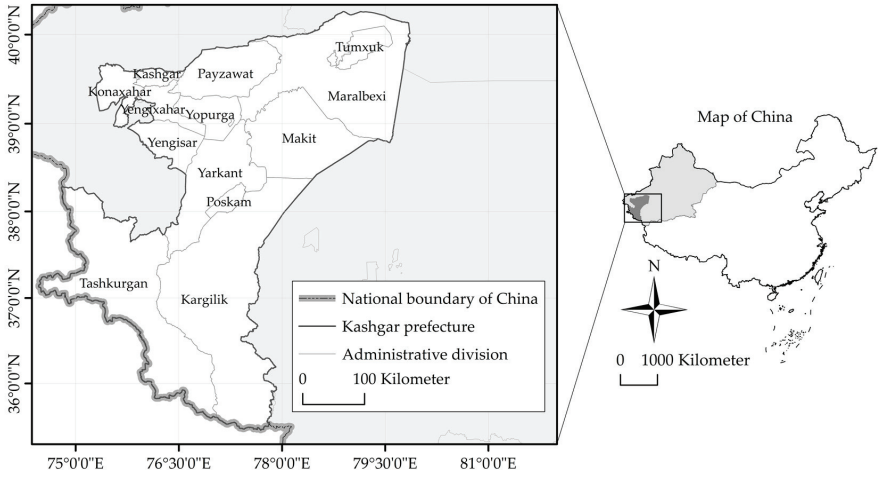


Figure 1. Schematic diagram of the Kashgar region division.

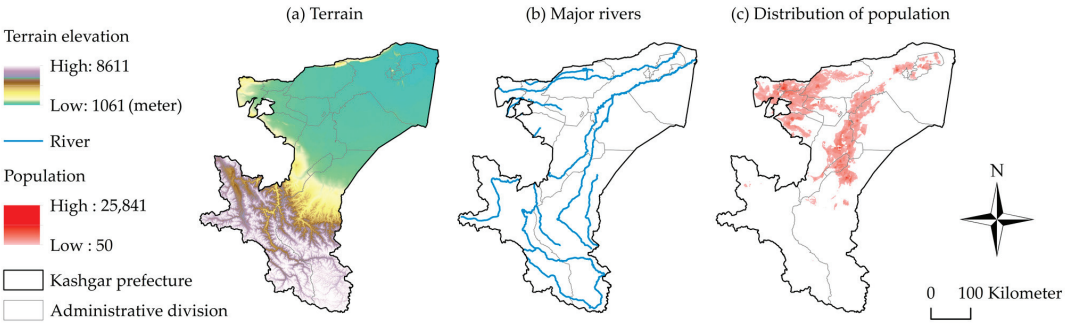


Figure 2. Schematic diagram of nature and population of the Kashgar region.

The study region is located between 74.39′ E and 79.52′ E and 35.28′ N and 40.16′ N, with a total area of 162,000 km^2, a width of about 750 km from east to west and a length of 535 km from north to south. The region is surrounded by mountains to the west, south and east, open to the Tarim Basin to the northeast, with the Pamir Plateau towering to the west, the Karakorum Mountains to the south, the Taklamakan Desert to the east, Tajikistan to the west, Afghanistan and Pakistan to the southwest, and several neighboring countries such as Kyrgyzstan, Uzbekistan and India. In order to avoid possible territorial disputes, neighboring countries and regions are not shown in Figure 1.

3. Data

3.1. Mosques Data

Under the current political system in China, the religious beliefs of the Chinese people are generally respected. However, as an atheist state with a socialist system, the Chinese government does not always release data on the development of its religions to society, which has led to less progress in empirical research on religion in Chinese academia. In 2004, the Chinese Census Bureau launched China's first economic census, and for the first time religious organizations and sites were included in the survey. Thereafter, as China's socialist system continued to improve, the Chinese government became stricter in its management of religious affairs, and no religious data of a census nature have been disclosed to society since then.

The economic census data involving religion were further compiled by the China Information Center at the University of Michigan to produce the China Religion Digital Map database. The various types of data information about religious organizations and sites contained in this database can well reflect the spatial distribution characteristics of religious sites in China. In this study, data from the database about mosques in the Kashgar region were selected. The main information used is as follows.

3.1.1. Location and Name of the Mosques

The names of most of the religious sites in the dataset contained information about the administrative districts and townships in which they are located (e.g., the mosque in group 1 of the village Seriqduvi 8, Azhil Township, Sacha County). This allowed us to observe the actual addresses of all recorded mosques that were selected as the sample for our study in the Kashgar region. In addition, because in China's religious affairs management system religious sites may also be used as the premises of religious affairs management agencies, there may be cases where the same mosque was counted multiple times in the Religion Digital Map. To avoid observation error due to sample duplication, we manually eliminated duplicate entries when processing the data.

3.1.2. Longitude and Latitude Coordinates of the Mosques

The dataset contained the latitude and longitude coordinates of all mosques. For sample points with mismatched latitude and longitude information and actual addresses, they could be corrected based on the address information in the mosque names. For multiple sample points with overlapping latitude and longitude, if their names duplicated each other only one was retained. Therefore, after compiling the data, up to the data cut-off (2004) the dataset contained a total of 9876 mosques in the Kashgar region.

3.1.3. Information on the Operation Nature of the Mosques

Religious sites are strictly regulated in China, and require administrative permission from the relevant authorities (usually the religious affairs administration office) to operate and survive. Organizations that apply for registration of religious sites will only be allowed to conduct religious activities in its approved sites. The mosques involved in this study are all legally registered religious sites of Islam, and do not include sites that are unregistered or registered for uses of another nature. In addition, mosques in the Kashgar region are of different sizes and play different functions in the religious life of the faithful, but the first economic census did not record the size of religious places. Therefore, this study assumes that all mosques are homogeneous. The database also contains information about the juridical person of each mosque, such as gender, ethnicity, etc.

3.1.4. The Year the Mosques Started

During China's first economic census, only religious sites that were still in existence as of the statistical node (2004) were recorded, so the dataset used in this paper did not include religious sites that were established and then died out in the past. It is assumed in this study that the starting year of all mosques selected is prior to 2004 and that they have been in continuous existence since their establishment. In the dataset used for this study, the longest-standing mosque started in 947 AD. The information on the starting year of the religious sites allowed us to clearly observe the growth in the number of mosques in different years in the Kashgar region. In this study, four time points were selected to study the spatial distribution characteristics of the mosques: the official establishment of the Xinjiang Uyghur Autonomous Region in 1955, the end of the Cultural Revolution in 1976, Deng Xiaoping's Southern Tour speech in 1992, and the data cut-off period in 2004.

3.2. Maps and Geographic Data

The GCS_WGS_1984 coordinate system was used for all the geoprocessing procedures in this study. All maps produced in this study, and the administrative boundaries and national borders of the relevant regions involved, were made with reference to the maps provided by the Resource and Environmental Science and Data Center of the Institute of Geographical Sciences and Resources of the Chinese Academy of Sciences (https://www.resdc.cn/, accessed on 31 December 2022) as the base map. The geographic elevation data were obtained from NASA's SRTMDEM public data with a resolution of 90 m and processed by a Geospatial Data Cloud site, Computer Network Information Center, Chinese Academy of Sciences (http://www.gscloud.cn, accessed on 31 December 2022). River data are derived from publicly available data from the Ministry of Natural Resources of China (https://www.mnr.gov.cn/, accessed on 31 December 2022). Population data were obtained from the 2004 global population raster data published by Worldpop (https://www.worldpop.org/, accessed on 31 December 2022).

4. Methods

4.1. Standard Deviation Index and Coefficient of Variation

The number of mosques in a given area reflects to some extent the prosperity of Islam in it. To measure the differences in the number of mosques distributed in varying districts and counties in the Kashgar region, the standard deviation index was selected to measure the absolute differences in the number of mosques between regions, and the coefficient of

variation was selected to measure the relative differences between regions in this study. The standard deviation index, SD, and the coefficient of variation, CV, are calculated as follows.

$$SD = \sqrt{\frac{\sum_{i=1}^{N}(Y_i - Y_0)^2}{N}} \tag{1}$$

$$CV = \frac{SD}{Y_0} \tag{2}$$

In Formulas (1) and (2), Y_i represents the number of mosques in region i; N represents the total number of mosques in the Kashgar region, and Y_0 represents the mean number of mosques in all regions. The higher values of SD and CV represent the greater absolute and relative differences in the development of mosques in each region, respectively.

4.2. Global Moran's I

To observe whether differences in the spatial distribution of mosques in a given region are influenced by neighboring regions, the spatial autocorrelation of mosques is observed using global *Moran's I*.

$$Moran's\ I = \frac{\sum_{i=1}^{n}\sum_{j=1}^{n} W_{ij}(x_i - \overline{x})(x_j - \overline{x})}{S^2 \sum_{i=1}^{n}\sum_{j=1}^{n} W_{ij}} \tag{3}$$

$$Z = \frac{I - E(I)}{\sqrt{VAR(I)}} \tag{4}$$

In Equations (3) and (4), *Moran's I* reflects the correlation of the number of mosques in certain regions, taking values in $[-1, 1]$, greater than 0 indicating that there is a positive spatial correlation between neighboring regions, and negative correlation if the other way around, and equal to 0, indicating that there is no significant spatial correlation. $\overline{x}$ is the mean value of the number of mosques in certain regions, and S^2 is the variance in the number of mosques across the whole region. x_i and x_j represent the number of mosques in region i and region j, respectively. W_{ij} is the spatial weight: if i and j are connected by a shared boundary, W_{ij} takes 1; otherwise, it takes 0. n is the number of regions. $E(I)$ and $VAR(I)$ represent the expected value and variance of *Moran's I*, respectively. A positive and significant Z-score indicates that the mosques tend to be clustered; a negative and significant Z-score indicates that the mosques tend to be dispersed; and 0 means that the mosques are independently and randomly distributed in space.

4.3. Dot Density Estimation

The method of dot density estimation, DDE, is used to observe the areas where mosques are concentrated. In order to reflect the spatial clustering characteristics of mosques in the Kashgar region, all mosques are abstractly considered as vector points in space and the degree of spatial concentration of the sample was measured using DDE. Based on the location of point x_i as the center, the density of each grid cell of the point within the specified range (circle of radius h) is calculated by considering the data and bandwidth related to the point as parameters through the kernel function, which is linearly superimposed and normalized. The following is the formula used.

$$f(x) = \frac{1}{nh^d} \sum_{i=1}^{n} K\left(\frac{x - x_i}{h}\right) \tag{5}$$

In Formula (5), $f(x)$ is the DDE value at point x; n is the number of mosques; d is the dimensionality, and $(x - x_i)$ represents the distance from point x to sample point x_i. The closer the distance from the center point, the higher the DDE value and the more significant the trend of the concentrated distribution of mosques.

4.4. Standard Deviational Ellipse

The standard deviation ellipse, SDE, is a method of spatial statistics that can accurately reveal the multifaceted characteristics of the distribution of elements across space. Mosques in the Kashgar region are not uniformly distributed in space. To explore the migration trajectory, influence, and direction of the diffusion of Islam from a macro perspective, it is necessary to observe the centrality, extension, direction, and spatial pattern of the overall distribution of mosques. The SDE quantitatively characterizes the distribution of mosques in space by generating ellipses with the center, x axis (long axis), y axis (short axis), and azimuth as the basic parameters. The formula is as follows.

$$\overline{X_w} = \frac{\sum_{i=1}^{n} w_i x_i}{\sum_{i=1}^{n} w_i} \; ; \; \overline{Y_w} = \frac{\sum_{i=1}^{n} w_i y_i}{\sum_{i=1}^{n} w_i} \tag{6}$$

$$tan\theta = \frac{\left(\sum_{i=1}^{n} w_i^2 \tilde{x}_i^2 - \sum_{i=1}^{n} w_i^2 \tilde{y}_i^2\right) + \sqrt{\left(\sum_{i=1}^{n} w_i^2 \tilde{x}_i^2 - \sum_{i=1}^{n} w_i^2 \tilde{y}_i^2\right)^2 + 4\sum_{i=1}^{n} w_i^2 \tilde{x}_i^2 \tilde{y}_i^2}}{2\sum_{i=1}^{n} w_i^2 \tilde{x}_i \tilde{y}_i} \tag{7}$$

$$\sigma_x = \sqrt{\frac{\sum_{i=1}^{n} (w_i \tilde{x}_i cos\theta - w_i \tilde{y}_i sin\theta)^2}{\sum_{i=1}^{n} w_i^2}} \tag{8}$$

$$\sigma_y = \sqrt{\frac{\sum_{i=1}^{n} (w_i \tilde{x}_i sin\theta - w_i \tilde{y}_i cos\theta)^2}{\sum_{i=1}^{n} w_i^2}} \tag{9}$$

In Formula (6) to Formula (9), (x_i, y_i) denotes the coordinates of each mosque; w_i denotes the weight of site i in that region, and $(\overline{X_w}, \overline{Y_w})$ represents the coordinates of the center of the ellipse. θ is the azimuth of the ellipse, which indicates the angle of rotation clockwise from due north to the x axis of the ellipse. $\tilde{x}_i$ and $\tilde{y}_i$ represent the deviation of each site along the x axis and y axis to the $(\overline{X_w}, \overline{Y_w})$, respectively. σ_x and σ_y denote the standard deviation and the lengths along the x-axis and y-axis, respectively.

5. Analysis

5.1. Temporal Evolutionary Features of Mosques in the Kashgar Region

5.1.1. Changes in the Number of Mosques

The year-by-year number and growth of mosques in the Kashgar region are plotted as shown in Figure 3. From 1955 to 2004, the number of mosques in the area grew from 5803 to 9876, an increase of 70.19%. Judging purely from the number of mosques, the development of Islam in the study area has not been significantly resisted since the establishment of the Xinjiang Uyghur Autonomous Region.

The growth of the number of mosques in the Kashgar region can be clearly divided into three stages. From 1955 to 1976, the number of mosques grew more steadily and at a slower rate. Although there was a relatively large increase in the quantity of mosques in a few years, overall the number grew by no more than 100 per year. From 1976 to 1992, the curve became steeper during this period, and the quantity grew more rapidly. In particular, in 1980, the number of mosques increased by more than 600. This time period is the most significant year for the increase of mosques in the area during the study period. From 1992 to 2004 the growth rate slowed down, but still maintained a steady growth of 60 to 70 mosques per year; the growth rate was slower compared to 1978 to 1990, but faster compared to 1955 to 1978.

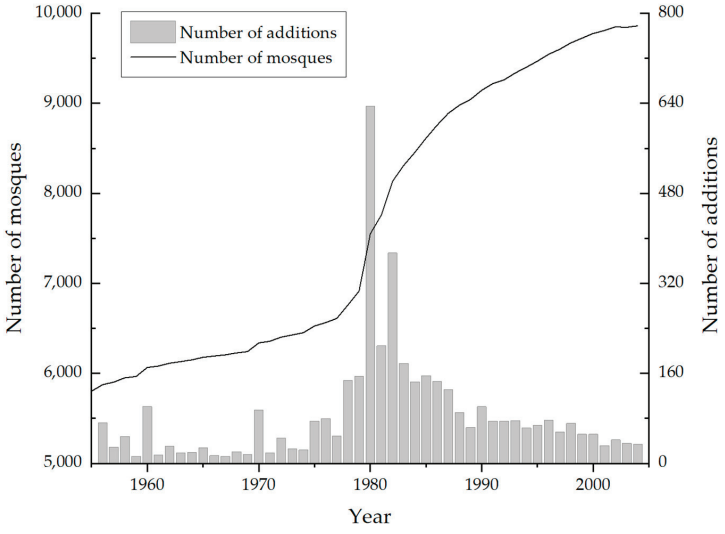


Figure 3. Trends in the number of mosques in the Kashgar region from 1955 to 2004.

The number of mosques within the 13 districts and counties in the study area was compared, and the data for four years, 1955, 1976, 1992, and 2004, were selected as shown in Table 1. In general, mosques are distributed within the districts and counties in the study area, and the number of mosques in each district and county has increased to varying degrees during the study period. Yarkant, Konaxahar, and Payzawat consistently rank in the top three of all districts in terms of the quantity of mosques, and these districts are more prosperous in terms of Islamic development. From 1976 to 1992, all districts and counties had higher growth rates compared to the rest of the years. Some districts such as Kashgar, Maralbexi, etc., with a relatively large number of mosques, still achieved a high growth in 1992 compared to 1976.

Table 1. Changes in the number of mosques by administrative counties in the Kashgar region.

	1955		1976		1992		2004	
	Number of Mosques	Growth Rate	Number of Mosques	Growth Rate	Number of Mosques	Growth Rate	Number of Mosques	Growth Rate
Maralbexi	120	-	229	90.83%	668	191.70%	784	17.37%
Payzawat	857	-	1024	19.49%	1164	13.67%	1168	0.34%
Kashgar	385	-	438	13.77%	590	34.70%	623	5.59%
Makit	171	-	212	23.98%	435	105.19%	455	4.60%
Yarkant	1459	-	1580	8.29%	1840	16.46%	1868	1.52%
Konaxahar	634	-	751	18.45%	1194	58.99%	1454	21.78%
Yengixahar	617	-	668	8.27%	912	36.53%	942	3.29%
Tashikurgan	9	-	10	11.11%	20	100.00%	20	0.00%
Tumxuk	2	-	2	0.00%	4	100.00%	8	100.00%
Kargilik	509	-	561	10.22%	899	60.25%	968	7.68%
Yengisar	316	-	337	6.65%	655	94.36%	684	4.43%
Yopurga	365	-	384	5.21%	485	26.30%	499	2.89%
Poskam	359	-	369	2.79%	399	8.13%	403	1.00%

It can be noted that the number of mosques in Tumxuk, Tashikurgan was not only low but also had no significant increase during the study period. Since the founding of the People's Republic of China, Tumxuk has been transformed from the initial management system of a people's commune to an administrative system under the direct manage-

ment of the Xinjiang Production and Construction Corps. Due to the limitations of the management and administrative system, the development of Islam in Tumxuk was more strictly regulated, so the number of mosques in the city was far less than in other districts and counties. Tashikurgan is located on the southwest border of Xinjiang, the territory is mountainous, and belongs to the plateau alpine arid climate. Although its area is large and borders several countries and regions, as shown in Figure 2, the deficiencies of its natural environment make the region sparsely populated (the 2019 Chinese census shows a population of just over 40,000 people in Tashikurgan); the quantity of mosques was low. The number of mosques owned by the remaining districts and counties during the study period is considerable, and the overall situation of Islamic development in the Kashgar region was good.

5.1.2. Statistical Characteristics of the Number of Mosques

The standard deviation index, coefficient of variation, and global *Moran's I* were used to measure the quantitative characteristics of mosques in the Kashgar region spatially, as shown in Table 2.

Table 2. Statistical characteristics of mosque distribution in the Kashgar region from 1955 to 2004.

	1955	1976	1992	2004
N	5803	6565	9265	9876
Growth rate	-	13.13%	41.13%	6.59%
SD	379.1082	415.203	481.2163	509.8243
CV	0.849286	0.822184	0.675209	0.671093
Moran's I [1]	0.257986 ***	0.266054 ***	0.280559 ***	0.290587 ***
Z	4.029865	4.102548	4.118258	4.251173

[1] *, **, and *** represent significance at 10%, 5%, and 1%, respectively.

The increasing *SD* of the number of mosques during the study period reflects the increasingly significant absolute differences in the distribution of mosques in the Kashgar region across districts and counties. Districts with a dominant number of mosques are more likely to gain further numerical growth than those with a smaller number. The *CV* has a slight tendency to decrease, reflecting a decrease in the dispersion of the number of mosques in each district and county. This indicates that the districts and counties with a relatively small number of mosques during the study period gained more significant growth compared to the statistical base period, and the increase was greater than that of the regions with dominant numbers.

The study area consisted of 13 county-level units, but the global *Moran's I* suggested a sample size of at least 26. Therefore, a square was constructed based on the approximate area of the study region, and the Kashgar region was divided into 103 grid cells with a standard length and width of 50 km to meet the requirements of global *Moran's I* for the examination of sample size.

The *Moran's I* was greater than 0 from 1955 to 2004, and all passed the 99% confidence test. This indicates that there is a positive autocorrelation in the spatial distribution of the number of mosques in the Kashgar region, i.e., the number of mosques within a certain area is influenced by the neighboring areas.

During the global *Moran's I* test, if the *Z*-score is greater than 2.58 the sample can be considered to be spatially clustered. The results show that the *Z*-scores of the number of mosques in the study area were all greater than 2.58, and it can be concluded that mosques showed a concentrated distribution.

It is noted that the *SD* increased more rapidly from 1976 to 1992, and the *CV* plummeted during that period, but the changes in the *Moran's I* and *Z*-score were less pronounced than the changes in the *SD* and *CV*. This suggests that the development of Islam and the rapid increase in the number of mosques in each region from 1976 to 1992 did not break the spatial autocorrelation of religious development in the region, nor did it signif-

icantly affect the spatial clustering characteristics of mosques. It is just that the absolute disparity in development between regions was significantly magnified, and the growth rate of the quantity of mosques in regions was more significant in that period compared to other periods.

5.2. Spatial Evolution Characteristics of Mosques in the Kashgar Region

5.2.1. Spatial Distribution of Mosques

The formation and development of religion and its spread depend on a specific geographical environment. Additionally, once a religion is formed, it can react to the geographic environment and its landscape will become an important part of the space. Geography has had a profound influence on the formation and survival of religious sites. Considering that the geographical conditions of the Kashgar region were basically unchanged during the study period and the population movement was less frequent, in order to explore the interaction between mosques and geographical space in Kashgar region three aspects of topography, rivers and population schematic in the study area can be referred to from Figure 2 in the previous text. Four years, 1955, 1976, 1992 and 2004, were selected to observe the spatial distributions of mosques in Kashgar region using DDE, as shown in Figure 4. For comparison purposes, the DDE values for 2004 were categorized by natural breaks and, subsequently, the values for the remaining three years were displayed using this categorization as a criterion.

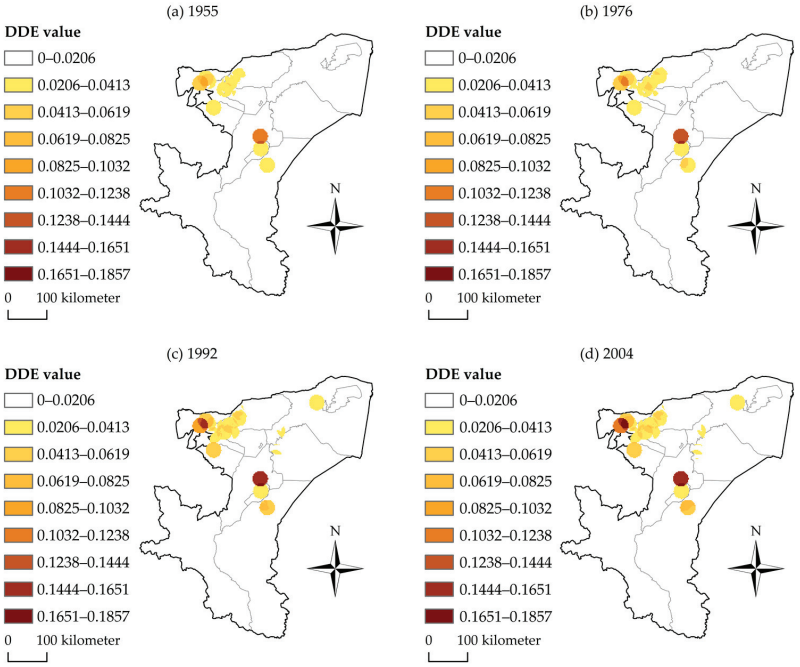


Figure 4. Dot density of mosque distribution from 1955 to 2004.

The high value area of DDE reflects the concentrated distribution of mosques in the Kashgar region. It can be seen that the mosques were mainly distributed in the northwestern and central parts of the region, with a concentration in the northeastern part of the region at a later stage. These areas are relatively low in elevation and have rivers, and the population is more densely distributed. Islam in the Kashgar region focuses on the integration of religious and social life (Pa 2006), while human social activities give preference to areas with a better natural environment. The advantageous location has allowed Muslims to

concentrate their social and religious activities, resulting in a more prosperous Islam and a relatively larger quantity of mosques. Secondly, the mosque, which has both religious and social functions, will become an important place in the daily life of Muslims once it is built (Jani et al. 2015). Muslims in the Kashgar region use the mosques for their daily worship, scripture study, weddings, funerals and other activities. In addition, the important religious and social functions of the mosque can attract the population to gather around it, thus accelerating the prosperity of Islam in its locality. Therefore, the organic interaction between the beliefs carried by the mosques and the geographical environment has resulted in a spatially clustered distribution of mosques in the Kashgar region.

5.2.2. Clustering of Mosques

From the color differences of DDE values in Figure 4 in different years, it can be seen that the distribution of mosques in the northwestern, central, and northeastern regions of the Kashgar region from 1955 to 2004 showed a more obvious clustering feature and a growing trend of concentration. From 1955 to 1976, there was no significant increase in the agglomeration of mosques in the Kashgar region and the DDE values were elevated only in Konaxahar and Yarkant. Between 1976 and 1992, the DDE values were significantly elevated in Konaxahar and in the population agglomerations of Yarkant and Poskam. This period also saw the emergence of new agglomerations in the areas along the river, in Makit in the central part of Kashgar and in Maralbexi in the northeast where there is a relatively large population distribution. From 1992 to 2004, the DDE values in the Kashgar region showed a small increase in a small part, although the overall change was not significant. On the whole, the agglomeration of mosques in the study region has strengthened, and the scope of clustering has increased, especially from 1976 to 1992.

DDE is able to mark the macroscopic distribution and concentration of samples in a region at a large scale. In order to observe the agglomeration distribution of mosques on a small scale, the Kashgar region was divided into 7667 units with a grid of 5 km $\times$ 5 km. If the number of mosques in a unit is greater than 50, it is judged that the unit has a strong agglomeration effect, and is said to be an aggregation unit. The units were divided into four classes based on the number of mosques. The distribution of the aggregation units for the four selected years of 1955, 1976, 1992, and 2004 is shown in Figure 5. The number of aggregation units in each district and county of the Kashgar region at four time points is counted as shown in Table 3, and the numbers in parentheses after the place names represent the number of aggregation units of a certain class owned by the place.

In terms of the spatial location of the aggregation units, the spatial clustering of mosques reflected by Figure 5 is not significantly different from the clustering reflected by DDE. During the study period, the aggregation units in the Kashgar region were mostly clusters of 50 to 100 mosques, and it was less common that more than 100 mosques occurred simultaneously in a unit. A small number of units received a rank upgrade during the study period. It is worth noting that, as of 1976, there were only two clustering cells at the junction of Makit and Maralbexi (which are bounded by the river, and the cities along the river have always been relatively well developed and densely populated), but by 1992 many new clusters had appeared there. Otherwise, the spatial distribution of aggregation units in 2004 did not differ much from that in 1955.

By district, the distribution of aggregation units was found in all districts except Tumxuk and Tashikurgan. The quantity of aggregation units in Maralbexi, Makit, and Kargilik increased during the study period. All three areas were located in the eastern part of the study area, and the increased units were located in districts with rivers passing through and high population, which reflects the trend of clustering of mosques to the eastern districts and counties.

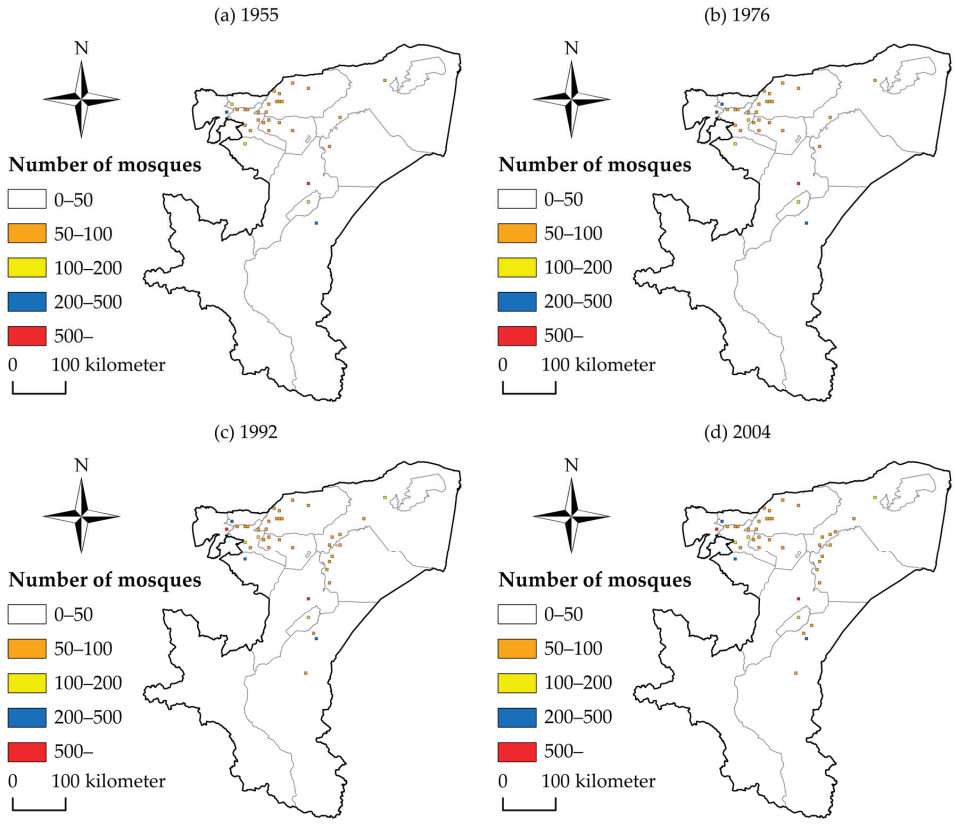


Figure 5. Spatially concentrated distribution of mosques in a fishnet of 5 km × 5 km in the Kashgar region from 1955 to 2004.

Table 3. Rank distribution of aggregation units owned by each district and county of the Kashgar region.

Rank	1955	1976	1992	2004
50–100	Payzawat (10) Yengixahar (6) Yopurga (5) Maralbexi (2) Makit (1)	Payzawat (10) Yengixahar (5) Yopurga (5) Maralbexi (2) Makit (1)	Payzawat (10) Yopurga (5) Makit (5) Maralbexi (4) Yengixahar (4) Kargilik (2)	Payzawat (10) Yopurga (5) Makit (5) Maralbexi (5) Yengixahar (4) Kargilik (3)
100–200	Kashgar (1) Yengisar (1) Poskam (1)	Yengixahar (1) Yengisar (1) Poskam (1)	Yengixahar (2) Poskam (1) Maralbexi (1)	Yengixahar (2) Poskam (1) Maralbexi (1)
200–500	Konaxahar (1) Kargilik (1)	Konaxahar (1) Kargilik (1) Kashgar (1)	Kargilik (1) Kashgar (1) Yengisar (1)	Kargilik (1) Kashgar (1) Yengisar (1)
500–	Yarkant (1)	Yarkant (1)	Yarkant (1) Konaxahar (1)	Yarkant (1) Konaxahar (1)

Yengixahar, Kashgar, Yengisar, and Konaxahar have increased their clustering cell class. These four districts, which border each other and are located in the most densely

populated areas in the northwestern part of the study area, also ranked higher in terms of the number of mosques among all districts (Table 1 shows this), and the agglomeration effect of mosques was more significant.

Payzawat consistently had more aggregation units than the other districts during the study period, but the area of high DDE values in the county was concentrated mainly in its southwestern orientation and did not cover all the clustering cells. It can be concluded that the development of mosques in Payzawat was influenced by the agglomeration effect of the neighboring districts of Kashgar and Yengisar, and the agglomeration effect of mosques in neighboring areas of Payzawat was more advantageous. In general, the spatial agglomeration of mosques in the Kashgar region was still influenced by geographical environment and demographic factors, and the agglomeration effect was especially obvious in districts and counties where mosque development had advantages.

5.2.3. Spatial Expansion of the Mosque

The standard deviation ellipse, SDE, can abstractly reflect the geometric characteristics of the distribution of sample points in space. SDE is used to observe the spatial expansion of mosques in the Kashgar region from 1955 to 2004, as shown in Figure 6 and Table 4.

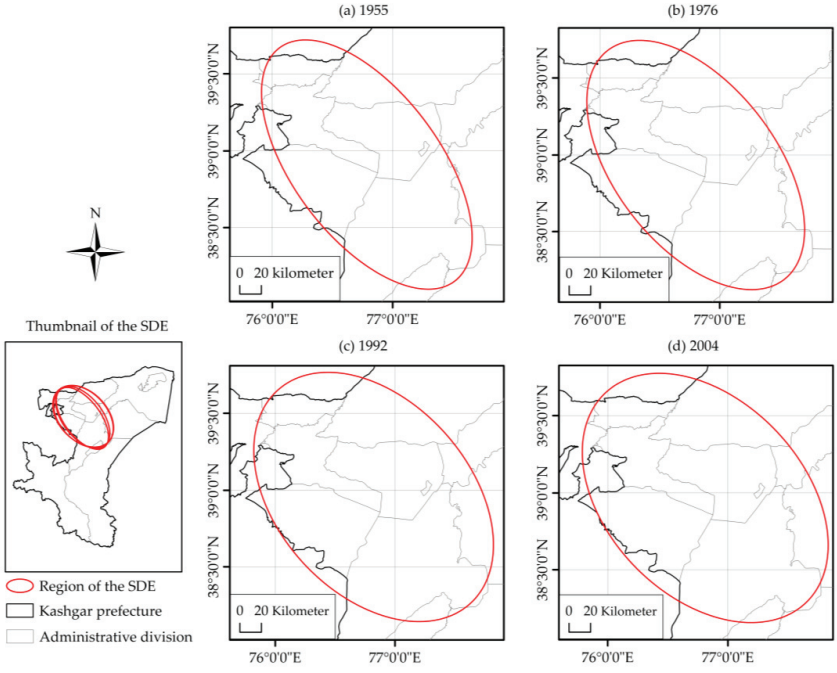


Figure 6. Changes in the SDE of mosque distribution in the Kashgar from 1955 to 2004.

Table 4. SDE data for the spatial distribution of mosques in the Kashgar region from 1955 to 2004.

	1955	1976	1992	2004
Coordinates of center	76.785689° E 38.906773° N	76.799293° E 38.930410° N	76.821778° E 38.951602° N	76.811586° E 38.962799° N
x lengths: σ_x (km)	270.683	268.539	272.384	268.920
y lengths: σ_y (km)	135.632	149.123	179.592	181.376
Area (km^2)	28815.107	31,581.231	37,500.608	38,287.301
Azimuth: θ	131.165°	128.816°	120.532°	118.842°

The area of the SDE continued to increase during the study period, especially during the period from 1976 to 1992. The mosques in the Kashgar region are not only continuously clustered within the SDE, but also grow significantly outside. However, the center coordinates of the SDE did not move significantly during the study period, indicating that the mosques' growth outside the SDE was not sufficient to weaken the intensification of the agglomeration effect in the area near the center point of the SDE.

During the study period, the distribution of SDE from the northwest-southeast direction underwent a counterclockwise rotation, and the rotation angle tended to decrease. The x (long axis of the ellipse) lengths did not change significantly. However, the y (short axis of the ellipse) lengths, especially from 1976 to 1992, have increased significantly and the shape of SDE gradually became rounded. Combined with the analysis in the previous subsections, the increase in the number of mosques in the eastern and northeastern districts of the SDE, such as Maralbexi and Payzawat, has led to an outward expansion of the mosque agglomeration effect, resulting in a change in the geometry of the SDE, i.e., the spatial expansion of mosques has had a diffusion effect, but the diffusion effect has not had a significant impact on the agglomeration of mosques in several districts and counties in the northwestern part of the Kashgar region. Accordingly, it can be inferred that the center point of SDE will still not change much after 2004, but the area will continue to change, and the rotation angle will continue to decrease. Mosques will continue to expand in the eastern and northeastern parts of the study region, and the agglomeration effect will continue to increase in the northwestern part. The absolute difference of mosque development in the region will further expand and the relative difference will continue to decrease.

5.3. Causes of the Evolution of the Spatial Distribution of Mosques in the Kashgar Region

The natural conditions of regions can be an important factor influencing the early process of origin and spread of religion. The population of the Kashgar region has mostly been distributed since ancient times in geographic areas with gentle terrain, freshwater resources, and in non-desert areas, which tend to form relatively developed urban settlements as the population gathers. The emergence of settlements provided the missionary infrastructure for the early development of Islam in this region.

Around the tenth century A.D., the rulers of the Kara-Khan Dynasty were influenced by their western neighbor, the Samanid Dynasty, and embraced Islam. The rulers represented the upper echelons of the religious hierarchy, and Islam became the official faith of the Kara-Khan Dynasty. During this period, Islam spread spatially with geographic carriers such as commercial roads and cities. After the division of the Kara-Khan Dynasty, the Eastern Kara-Khan Dynasty took ancient Kashgar, the northwestern part of the Kashgar region studied in this paper, as its economic, political, and cultural center. Although deeply inland, ancient Kashgar was relatively rich in river resources and gently sloping, and its location at the natural boundary between East Asia and Central Asia, as well as its relatively dense population, gave rise to many settlements and cities (Zilolakhon and Akhmadjonov 2022). The establishment of mosques completed the social and religious functions of these settlements and cities. Similarly, in the Yarkand Khanate area (near the river on the west side of present-day Makit), the gentle terrain and the presence of the river made it easier for the population to gather and Islam to flourish there. In the analysis of the previous study, the spatial layout of the mosque also favors areas with gentle terrain, freshwater resources, and in non-desert areas. Therefore, it can be argued that natural features and population are the two basic causes of the spatial distribution of mosques in the Kashgar region.

In the period studied in this paper, between 1955 and 2004, social factors were an important reason for the evolution of the spatial pattern of mosques in the Kashgar region. The Uyghur autonomy system was introduced in Xinjiang in 1955, with the Chinese government declaring that it would fully guarantee the customs and religious beliefs of minority groups. In 1958, Xinjiang completed its democratic reform and socialist transformation and carried out a reform of its religious system focusing on the elimination of religious feudal privileges and exploitation and the prohibition of illegal activities by religious people.

During this period, some mosques in the Kashgar region were spontaneously demolished by the masses, some collapsed naturally, and some were collectively occupied or demolished during the communalization period (Cao and Youze 2006). However, at this time the government did not restrict the legal religious activities in the mosque, and some less developed areas still build a number of new mosques to meet the normal religious needs of the masses.

During the "Cultural Revolution", from 1966 to 1976, the Chinese government's religious policy guidelines were undermined and a large number of mosques were occupied as revolutionary places for ideological propaganda (Li 2014). People in some districts and counties of the Kashgar region were banned from conducting religious activities in religious places. At this stage, although there was a demand for mosques among the faithful, fewer new mosques were built due to the political environment. Around 1976, with the end of the "Cultural Revolution," the Chinese government's religious policy was restored and implemented. A large number of mosques in the Kashgar region were approved to be restored and newly built. During this period, the management of the mosques that were occupied and demolished during the "Cultural Revolution" was returned to the faithful. After this, religious activities and the management of mosques in the Kashgar region developed normally.

Since 1978, mainland China has been implementing a policy of reform and opening up. Due to the relaxation of the national economy's restrictions on the means of production as well as material and equipment, and the proximity to the border, the social production in the Kashgar region was further liberated and a large number of businessmen emerged. After 1980, the number of mosques in the Kashgar region expanded dramatically, financed by a few businessmen and mostly by compulsory distribution to the faithful. Most of the businessmen financed the construction of mosques in their hometowns, and most of the "first rich people" came from several districts and counties in the northwest of the Kashgar region. This period is also the most significant change in the spatial pattern of mosques from 1995 to 2004. Although the number of mosques has grown and Islamic activities have developed well, it is clear that it has increased the financial burden on the faithful (Xie and Du 2013).

In the late 1980s, the government concluded that illegal religious activities existed in Xinjiang and that it was more vulnerable to the influence of separatist forces outside China. Therefore, in 1990, the Xinjiang government issued a new management policy for mosques in various areas. At this stage, the relevant authorities believed that the religious sites owned by southern Xinjiang at that time could fully meet the needs of the religious masses in terms of policy religious life, and that the new construction of mosques would be managed restrictively. After the 1990s, the Xinjiang government stipulated that, in principle, no new mosques would be built. However, new settlements and herdsmen settlements without mosques can build new mosques after strict approval procedures. The excessive number of mosques was considered a sign of religious fanaticism. The increase in illegal religious activities resulting from religious fanaticism was one of the dangerous factors affecting social stability in Xinjiang. Therefore, the relevant authorities required the mosques in the Kashgar region to be equipped with legal persons. The database used for this study shows that all of the people serving as legal persons in the mosques were Uyghurs and there were no Han Chinese. From this perspective, religious affairs in the Kashgar do implement the policy of minority autonomy.

In 1992, Deng Xiaoping's Southern Talk reaffirmed the importance of the market economy in China's reform and opening-up process. Due to its special geographical location, the Kashgar region had relatively frequent economic exchanges with the outside of China and the living standard of the people had been rising in the process of reform and opening up. The urban areas of the districts and counties in the Kashgar region were constantly expanding, with more and more new settlements, and the existing mosques did not meet the needs of the faithful. With the financial support of the faithful, new mosques were built, and while not as many as in the 1980s, the number was still relatively significant.

It is worth noting that, in conjunction with the previous analysis, even though new mosques were being built, the number of new mosques was still relatively small compared to the number of mosques already built. Therefore, the spatial distribution pattern of mosques in the Kashgar region from 1992 to 2004 was not much changed. In addition, Tumxuk has been sparsely distributed due to the implementation of the Xinjiang Production and Construction Corps management system, and the incompatibility of Islamic beliefs with the ideology of the local administration.

In general, the spatially changing characteristics of mosques in the Kashgar region from 1955 to 2004 are basically closely related to the historical evolution of the region from the time periods selected for this study (1955, 1978, 1992, and 2004). Geographical conditions and population laid down the basic characteristics of the distribution of mosques in the region. After the founding of People's Republic of China, changes in social factors such as productivity, religious management system, and administrative system are the reasons for the changes in the spatial distribution characteristics of mosques in the Kashgar region.

6. Conclusions and Discussion

This study examines the spatial and temporal evolution of the spatial distribution pattern of mosques in the Kashgar region of Xinjiang, China, from 1955 to 2004, based on data from the Digital Map of Religions in China, using mathematical statistical methods and spatial analysis, and explores the causes. The results of the study show that there was a significant increase in the number of mosques during the study period. The agglomeration effect of mosques in the region was greater than the diffusion effect, and the growth of mosques was more significant in agglomeration areas than in non-agglomeration areas. In the Kashgar region, the absolute difference in the development of mosques across districts and counties continued to expand, and the agglomeration effect had a tendency to increase. The number of mosques in non-agglomerated areas also increased during the study period, and the relative differences in regional development tended to decrease. The spatial distribution of mosques showed spatial autocorrelation and tended to be clustered. The districts and counties in the northwestern part of the Kashgar region, such as Yengixahar, Kashgar, and Konaxahar, were the areas with the most pronounced mosque aggregation effect. In addition, concentrations were also seen in Yarkant, Poskam and other districts and counties.

The period from 1976 to 1992 was the most obvious period of change in the pattern of mosque concentration and distribution in the Kashgar region. Later in the study period, new areas of agglomeration emerged in Maralbexi in the northeastern part, and in Makit in the central part of the region. Overall, the clustering of mosques in the study area was found mostly in areas with gentle topography, rivers and dense population. Geographical conditions were the basic factors affecting the distribution of mosques in the Kashgar region, and demographic factors also played a key role in the construction and development of mosques. During the study period, social factors were an important reason for the evolution of the spatial pattern of mosques. Under the current social system in China, factors such as the increase of productivity, administrative system, religious management policies, and historical background have greater impact on the evolution of the spatial distribution pattern of mosques. The effects of these factors on the development of Islam in the Kashgar region cannot be ignored.

This study has implications for understanding the development of Islam in the Kashgar region and the spatial evolution of mosques in the region since the founding of the People's Republic of China. However, limited by the data sources of the first economic census of China, the digital map of Chinese religions on which this study is based cannot fully reflect the whole picture of mosque development in the study region, and can only briefly explore the development of mosques in the region from a spatial perspective. Firstly, the first economic census only recorded the year of origin of religious sites, and it was not possible to identify and confirm whether some mosques belonged to those that were destroyed during the "Cultural Revolution" and other historical events but were subsequently restored. Since

the information on religious affairs in the Kashgar region during the Cultural Revolution is insufficient and difficult to obtain, the role of special historical events in the development of mosques in the Kashgar region remains to be explored. Secondly, mosques in the region are differentiated by size, but since the first economic census did not count the size of religious places this study does not explore the spatial heterogeneity of mosques in depth. Therefore, studies related to the development of mosques in the Kashgar region still need to be further developed.

Author Contributions: Conceptualization, Y.Z. and S.W.; Methodology, S.W.; Software, W.W. and T.N.; Investigation, Y.Z; Resources, Y.Z. and S.B.; Writing—review and editing, S.W. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Not applicable.

Acknowledgments: We would like to express our gratitude to all reviewers for their thoughtful comments that helped us immensely in improving our paper.

Conflicts of Interest: The authors declare no conflict of interest.

References

Bao, Shuming, Changzhen Wang, and Miao Shui. 2014. Spatial Study of Religion with Spatial Religion Explorer. Paper presented at 22nd International Conference on Geoinformatics, Kaohsiung, Taiwan, June 25–27; pp. 1–8.

Brace, Catherine, Adrain. R. Bailey, and David. C. Harvey. 2006. Religion, place and space: A framework for investigating historical geographies of religious identities and communities. *Progress in Human Geography* 30: 28–43. [CrossRef]

Brzozowski, Grzegorz. 2013. Spatiality and the Performance of Belief: The Public Square and Collective Mourning for John Paul II. *Journal of Contemporary Religion* 28: 241–57. [CrossRef]

Campbell, Michael O'Neal. 2005. Sacred Groves for Forest Conservation in Ghana's Coastal Savannas: Assessing Ecological and Social Dimensions. *Singapore Journal of Tropical Geography* 26: 151–69. [CrossRef]

Cao, Jingyi, and Youze Hu. 2006. An Experimental Discussion of Current Ethnic Relations in Xinjiang. *Journal of Yili Normal University* 1: 50–53.

Dai, Yuanchen. 2019. Research on the Construction of Harmonious Ethnic Relations in Xinjiang Under "the Belt and Road" Strategy. Paper presented at 4th International Conference on Contemporary Education, Social Sciences and Humanities (ICCESSH 2019), Moscow, Russia, May 17–19; pp. 1814–18.

Dann, Norman. K. 1976. Spatial Diffusion of a Religious Movement. *Journal for the Scientific Study of Religion* 15: 351–60. [CrossRef]

Gokariksel, Banu. 2009. Beyond the officially sacred: Religion, secularism, and the body in the production of subjectivity. *Social and Cultural Geography* 10: 657–74. [CrossRef]

Gregory, Ian N. 2003. *A Place in History: A Guide to Using GIS in Historical Research*. Oxford: Oxbow Books.

He, Husheng, and Wenhui Wang. 2021. On the Socialist System of Religious Governance with Chinese Characteristics. *Studies in World Religions* 1: 1–15.

Holloway, Julian. 2003. Make-believe: Spiritual practice, embodiment, and sacred space. *Environment and Planning A* 35: 1961–1974. [CrossRef]

Jani, Haza Hanurhaza Md, Nor Zalina Harun, Mazlina Mansor, and Ismawi Zen. 2015. Exploring the Islamic Garden Concept as Inspirational Landscape Design. *Procedia—Social and Behavioral Sciences* 170: 359–68. [CrossRef]

Jiang, Jingyun. 2019. Spatial Distribution Pattern of Religious Buildings in Fujian Province Based on POI Data Driving Force Study. Master's thesis, Fujian Normal University, Fuzhou, China.

Jordan, Teryy G., and Mona Domosh. 1999. *The Human Mosaic: A Thematic Introduction to Cultural Geography*, 8th ed. New York: Addison Wesley Longman, pp. 215–59.

Khosravi, Hassan. 2019. Human Rights Challenges of Chinese State's Interactions with Xinjiang Muslims. *Jornal of Eslamic Human Rights* 8: 33–60.

Kong, Lily. 2001. Mapping 'New' Geographies of Religion: Politics and Poetics in Modernity. *Progress in Human Geography* 25: 211–33. [CrossRef]

Kong, Lily. 2002. In Search of Permanent Homes: Singapore's House Churches and the Politics of Space. *Urban Studies* 39: 1573–86. [CrossRef]

Kong, Lily. 2005. Religious Schools: For Spirit, (f)or Nation. *Environment and Planning D: Society and Space* 23: 615–31. [CrossRef]

Li, Xiaoxia. 2014. Analysis of the change in the number of mosques and management policies in Xinjiang. *Sociology of Ethnicity* 164: 38–46.
Liu, Jeffrey, and Ziling Wan. 2022. The Making of a Sacred Landscape: Visualizing Hangzhou Buddhist Culture via Geoparsing a Local Gazetteer the Xianchun Lin' an zhi 咸淳臨安志. *Religions* 13: 711. [CrossRef]
Liu, Yuqing, and Yuanlin Wang. 2022. Spatiotemporal Reconstruction of Water Deities Beliefs in the Pearl River Delta Applying Historical GIS. *Religions* 13: 1040. [CrossRef]
Lloyd, Christopher. D. 2012. Analysing the Spatial Scale of Population Concentrations by Religion in Northern Ireland Using Global and Local Variograms. *International Journal of Geographical Information Science* 26: 57–73. [CrossRef]
Lu, Jianfu. 2022. On Several Issues in the Study of Marxist Religion. *Science and Atheism* 5: 11–18.
Ma, Bei. 2012. A research Study on Spatial Distribution within a Mosque, with Linxia Mosque as an Illustration. Master's thesis, Northwest Minzu University, Lanzhou, China.
Pa, Linda. 2006. Islam in the Kashgar region of Xinjiang. *China Muslim* 2: 33–34.
Peach, Ceri. 1999. Social geography. *Progress in Human Geography* 23: 282–88. [CrossRef]
Preston, Laurence W. 2002. Shrines and Neighbourhood in Early Nineteenth-Century Pune, India. *Journal of Historical Geography* 28: 203–15. [CrossRef]
Song, Li, Yexi Zhong, Xinghua Feng, and Jie Huang. 2016. Research on spatial-temporal pattern and evolution model of religious sites in Jiangxi province. *World Regional Studies* 25: 166–76.
Sopher, David E. 1981. Geography and Religions. *Progress in Human Geography* 5: 510–24. [CrossRef]
Stump, Roger W. 1986. The geography of religion: Introduction. *Journal of Cultural Geography* 7: 1–3. [CrossRef]
Sunier, Thijl. 2013. Space-making and religious transformation: Mosque building in the Netherlands. *Canadian Journal of Netherlandic Studies* 34: 59–82.
Valins, Oliver. 2003. Defending identities or segregating communities: Faith-based schooling and the UK Jewish community. *Geoforum* 34: 235–47. [CrossRef]
Xie, Yongping, and Wuzheng Du. 2013. Investigation and Analysis of the Current Economic and Social Situation of Rural Areas in South Xinjiang—A Study of Rural Areas in Shache County, Kashgar City. *Theory Research* 34: 93–96.
Xue, Dongqian, Ning Shi, Zhiyong Duan, Jing Guo, and Ling Li. 2013. The channel of cultural exchange, spread and diffusion: A case study of the Silk Road in China. *Journal of Northwest University (Natural Science Edition)* 43: 781–86.
Xue, Ximing, Hong Zhu, and Xueqiong Tang. 2009. Spatial Distribution and Evolution of Urban Religious Landscape: A Case Study of Protestant Churches in Guangzhou after 1842. *Human Geography* 1: 48–52.
Yu, Dan Smyer. 2011. *The Spread of Tibetan Buddhism in China: Charisma, Money, Enlightenment*. London: Routledge.
Zhang, Zhigang. 2021. On Innovative Religious Governance System with Chinese Characteristics. *China Religion* 7: 8–9.
Zhong, Yexi, and Shuming Bao. 2014. Space-Time Analysis of Religious Landscape in China. *Tropical Geography* 34: 591–98.
Zhou, Yong. 2022. Locality from Hybridization to Integration: Cultural Politics and Space Production of Taiwan Mazu Temples in Mainland China. *Religions* 13: 836. [CrossRef]
Zhu, Litao, Huimin Su, Ping Zhang, and Zhengwei Li. 2019. Spatial and temporal evolution of Tibetan Buddhist temples in Qinghai Province. *World Regional Studies* 28: 209–16.
Zilolakhon, Olimova, and Akhrorbek Akhmadjonov. 2022. System of governance of the karakhanid state and its essence. *Asian Journal of Research in Social Sciences and Humanities* 12: 106–8. [CrossRef]

religions

MDPI

Article

Spatial Study of Folk Religion: "The Direction of Xishen" (喜神方) as a Case Study

Yu Han

Department of Chinese Language and Literature, Fudan University, Shanghai 200433, China; 20110110054@fudan.edu.cn

Abstract: Xishen (喜神, the God of Happiness) is one of the folk beliefs widely known and believed by Chinese people. He has no clear image or specific birthday, and there is no place of worship dedicated to Him. Although He has no specific religious space, there are clear directions and time requirements for the worship of Xishen. The task of this article is not to present and explain the belief in Xishen comprehensively, but rather to analyze the practice of folk belief centered on the orientation of Him and people's cognition formation process of the object of their belief. Taking the spatial study of religions as a standpoint and starting from a broad understanding of dynamic space, we compare and analyze materials from historical documents, folktales, and the practice of sacrificing to Xishen. We consider the relationship between religious, social, and cultural lives and try to prove that such folk beliefs still play an important role in our daily life.

Keywords: folk religion; Xishen (the God of Happiness); spatial practice; space-time knowledge; Bagua (The Eight Diagrams)

1. Introduction

Faith activities are held in a certain time and space, and exert their influence on reality through space–time units. In the past few decades, many achievements have been made in the spatial study of religions, and scholars have applied multidisciplinary methods to solve such problems. However, most of these studies focus on specific religious sites, such as temples, ancestral halls, memorials, and other spaces. The religious activities held in people's daily lives and secular spaces are seldom addressed due to the lack of consideration of everyday spatial practices. However, the cognition of the divinity of the gods is often formed, strengthened, and transmitted through daily practice.

Here, we attempt to provide a special case study of the spatial study of religions through the analysis of the sacrificial activities of one of the auspicious gods in Chinese folk belief—Xishen (喜神, the God of Happiness)—and to establish a link between people's cognition of their belief and spatial orientation. The main purpose of this paper is to discuss the presence of religion in a secular context.

Xishen is one of the secular gods widely known and believed in by Chinese people. He has no clear image or specific birthday, and there is no place of worship dedicated to Him. Although He has no specific religious space, there are clear directions and time requirements for the worship of Xishen. In the almanac of the Chinese lunar calendar, "the Direction of Xishen" (喜神方, Xishen Fang) is marked every day in a prominent position, reminding people to make daily offerings and direct wishes to Him. During the Spring Festival and important celebrations such as weddings, the starting and ending times and orientations of important activities in the ceremony are also arranged around the direction of Xishen.

The worship of Xishen is not constrained by a specific religious space; the orientation and timing of worship are determined based on the subjects themselves, who participate in the religious activities. The direction of Xishen in the almanac is not fixed, and this fluidity also gives flexibility and adjustability to the relationship between people and Him.

Citation: Han, Yu. 2023. Spatial Study of Folk Religion: "The Direction of Xishen" (喜神方) as a Case Study. *Religions* 14: 379. https://doi.org/10.3390/rel14030379

Academic Editor: Z. George Hong

Received: 24 November 2022
Revised: 25 February 2023
Accepted: 1 March 2023
Published: 13 March 2023

Xishen is not in a static and sacred religious space. He can come to people through activities such as "Welcoming Xishen" (迎喜神), the "Xishen Fang Pageant" (游喜神方), that involves celebrating in the direction where Xishen is located to ask for blessings, and "Allaying Xishen" (送喜神, meaning to send off Xishen after the worship). Taking the spatial orientation that people can perceive and measure as a guide, we can say that this is close to daily life; it also shortens the spiritual distance with people and is closely related to people's practical activities.

In the relevant practice of "the Direction of Xishen", it can be seen that under the influence of this awareness, people make obvious active choices and have preferences regarding the direction in their living space. This is not necessarily based on having (in other words, understanding and mastering) knowledge, but is rather an intuitive choice to welcome "good luck" and avoid "ill luck". This choice is not only based on the actual practicalities of running a living space or personal career, and sometimes even disrupts or delays people's plans, but it can satisfy their expectations of the direction of good luck. Through some methods that can show their concern about "the Direction of Xishen", people believe that they bring happiness into their living space and lives. The good and ill luck metaphors in traditional thought directly affect people's attitudes towards their living space and their choice of travel orientation and sacrificial orientation. At the very least, when they know the direction of Xishen, people often choose to carry out worship in this direction and regard the people or things they encounter from this direction as being auspicious.

This research focuses on the folk belief in Xishen, and attempts to examine the importance of space in the Chinese folk belief system and why it appeared through the two-way dimension of diachronic retrospective and synchronic analysis. We will address the following three topics:

1. How does Xishen belief express the unique religious concept of the Chinese people?
2. How is "the Direction of Xishen" rooted in natural and historical factors, and finally formed in the unique framework of the relationship between humans and God in Chinese folklore?
3. How is "the Direction of Xishen" reconstructed and generalized as an integral part of contemporary values and implemented in the level of individual spatial perception and physical experience of the public, participating in shaping collective memory and identity.

The topic of folk religion in China has long been a concern for scholars from various disciplines at home and abroad. Wu Bing'an believes that "in the economic and social life, there are many phenomena of faith ... they are customs and practices of folk thinking concepts that have been continuously inherited and mutated from the original beliefs of human primitive thinking. These customs and conventions of thinking concepts have been believed by people, and even become an important factor that dominates people's material and spiritual life." (Wu 1985, p. 238). He summarized the differences between folk beliefs and religions, starting from "whether there is a fixed belief organization?", "whether it forms a complete belief system?", "whether there is direct utilitarianism?", "whether there is obvious diversity?", and six other aspects, and clearly expresses the view that folk beliefs cannot be equated with traditional religions (Wu 1985). Anthropologist Li Yiyuan summarized the content of folk beliefs by way of examples: "Including ancestor worship, god worship ... agricultural rituals, divination, etc., and even the space-time cosmology is also part of our religious concepts." (Li 2004, p. 116). He believed that Chinese folk beliefs are "diffused religions", and that the beliefs, rituals, and religious activities are closely mixed with daily life and diffused as a part of daily life (Li 2004). Religious scholar Jin Ze believed that "in China, folk religion is not only a historical phenomenon but a 'living' culture as well" (Jin 2006). Folk belief is rooted in the folk; it is a phenomenon that has existed for a long time, and has a strong mass basis; its importance cannot be ignored in the development of Chinese society and culture. He believed that the state should think about what strategies to adopt to manage folk beliefs at the level of social control and make them play an active role.

Adam Y. Chau focused on the folk cultural revivalism phenomenon during the reform era (from the early 1980s onward) of the People's Republic of China with a critical view. (Chau 2006) In his research, Chau tried to answer "how it is possible that popular religion has revived in the past twenty or so years." The section about the "Modalities of 'Doing Religion' in Chinese Culture" in his research provides a very practical and effective conceptual tool for the study of Chinese folk religion. His case study has shown that "to survive and thrive, temple associations and temple bosses have to negotiate with different local state agencies and accommodate official rent-seeking so as to secure different kinds of official endorsement and protection." (Chau 2005). Chen Chunsheng focused on the folk beliefs in rural South China during the Ming and Qing Dynasties in *Faith and Order*. In this research, he presented the changes in the complex relationship between the local and the central government, folk beliefs, and rural social systems. Chen pointed out that the reason why the custom of folk beliefs will endure is that it is rooted in the daily life of ordinary people. It comes from relatively "non-institutionalized" families and communities, so it is therefore difficult to be monopolized by a few people from the upper classes; it has been able to survive many dynastic changes and still be able to recover after being hit (Chen 2019).

These researchers accurately summarize the characteristics of Chinese folk beliefs: routine, popular, and non-institutionalized. However, it should be noted that the social culture formed in the long-term historical process contains complex and interactive relationships between local and central, folk and official factors. It reminds us that, while paying attention to the characteristics of folk beliefs, the influence of other cultural elements of society on folk beliefs cannot be ignored. This can be seen in people's admiration for the southerly orientation of Xishen.

The earliest international research on Chinese folk religions was from the group of European missionaries who entered China in the 19th century. Among them, French missionary Henri Doré not only preached in the rural areas of Shanghai, Anhui, and Jiangsu for more than 30 years, but also went deep into the local fields to carefully observe and record the daily life of ordinary people. His large number of ethnographic materials finally completed the 18-volume French version of the masterpiece *Recherches sur les superstitions en Chine*. Japanese scholar Watanabe suggested that folk religion is a religion compiled in the context of people's lives and used in life. Folk religion serves the overall purpose of life. Watanabe divided the folk religious concepts of the Han people into gods, ghosts, and ancestors, and further explained that the gods of the Han people have their own ranks and positions, that constitute a bureaucratic central government, and the temples in the world are the residences of the gods: external institutions through which they "respond to the various demands of the people, monitor their behavior, and determine their good and ill luck." (Watanabe and Zhou 1998, p. 19).

Many scholars have noticed the secularity, practicality, and bureaucratization of Chinese folk religion, but they generally pay little attention to the space concept shown in religion and the relationship between orientation and luck. In fact, in the practical field of folk beliefs, grasping the appropriate space and time is the primary prerequisite for the smooth holding of religious rituals, which is particularly evident in the worship of the Xishen. This shows that the spatial study of folk religion and the ideas about people's concept of space-time can provide necessary materials for the study of Chinese folk beliefs and supplement new perspectives and research approaches.

Besides, the spatial study has reference significance for this research. Sociologists have long ignored spatial issues. Anthony Giddens pointed out that, "neither time nor space have been incorporated into the center of social theory; rather, they are ordinarily treated more as 'environments' in which social conduct is enacted." (Giddens 1979, p. 202). Traditional social research usually regarded space as an external static "container" of social activities and did not pay attention to theoretical issues related to space. Georg Simmel compared space to language in *Sociology: Inquiries into the Construction of Social Forms*. He believed that "space remains always the form, in itself ineffectual, in whose modifications

the real energies are indeed revealed, but only in the way language expresses thought processes that proceed certainly *in* words but not *through* words." (Simmel et al. 2009, pp. 543–44).

Researchers sometimes underestimate the meaning and function of space itself, ignoring the facts that specific spaces and orientations are the embodiment of certain ways of religious thinking. By showing how "the Direction of Xishen" participates in folk history and contemporary practice, this research attempts to confirm that space is not just a physical space that carries people's belief practices, but can itself can offer valuable information about people's beliefs and culture.

2. The Invisibility of Xishen: The Faith in Xishen in Traditional Space—Time Knowledge

People in ancient times believed that good and ill luck were dominated by the gods. Many scholars think that Xishen (God of Happiness) does not have a fixed and unified image because happiness cannot be expressed in a concrete, specific way. We know that Caishen (财神) is the god of wealth, and people always turn to Shouxing (寿星) to pray for longevity. These gods are all created to achieve some specific goals. However, nobody can define "happiness" or give it a definition.

Émile Durkheim suggested that "all known religious beliefs display a common feature: They presuppose a classification of the real or ideal things that men conceive of into two classes—two opposite genera—that are widely designated by two distinct terms, which the words profane and sacred translate fairly well." (Durkheim and Fields 1995, p. 34). The relation between profane and sacred is "absolute" heterogeneity, which means they are as "two worlds with nothing in common" (Durkheim and Fields 1995, p. 36). He used the opposition of dichotomy to construct his "religious life". Therefore, in the real world, the sacred and the profane are not easily separated. It is impossible to achieve a comprehensive and accurate understanding of Chinese native gods and people's religious views if we start from the dichotomy of "profane and sacred" attitudes. From this point of view, before entering into the analysis of the related beliefs and practices of "the Direction of Xishen", it is necessary for us to have a preliminary understanding of Xishen itself.

2.1. Xishen with Diverse Images and Identities in Different Regions

Chinese people have been influenced by Confucianism for a long time and attach importance to real life under the domination of secular reasons. Therefore, their beliefs in gods are often for utilitarian purposes. In other words, their sacrificial activities are often performed in order to seek help from gods in real life, rather than for some sacred purpose. Therefore, most of the auspicious gods in China have a clear role related to worldly happiness. For example, Caishen is in charge of wealth, Wenquxing (文曲星) is in charge of schoolwork, Yuelao (月老) is in charge of marriage and love, etc. These auspicious gods not only have a specific scope of influence but also usually have a relatively clear and fixed image, as well as certain temples dedicated to their worship.

Xishen is different. The earliest records about Xishen appear in the 112th volume of the Taoist classic *Taiping Jing*, that says " . . . Tao control the universe and Xishen comes to help people govern countries, make people live longer, and repulse the enemy from Si-yi."[1] (Chen [1445] 2003, p. 419) Some scholars believe that *Taiping Jing* appeared in the Han Dynasty, and the oldest version of this classic that can be found so far is the 正统道藏本, from the early Tang Dynasty. Despite being a cultural icon for many years, people have not formed a classic image of Him, and there is no particularly unified or clear statement on his "responsibilities". For example, the people of Shahe Town, Shanxi Province (山西省砂河镇), believed that the ancient Chinese monarch, King Zhou of Shang (商纣王), was Xishen. (Zhang 2016) He was primarily in charge of marriage, so they made sacrifices to King Zhou during their wedding ceremonies. (Xu [1621] 2017) However, in the area of Jiangsu Province, people think that a person named Ge Cheng (葛成) was Xishen. Ge Cheng was a textile worker who rose up and died because he was dissatisfied with

the harsh taxes imposed by local officials. He was regarded by the local people as a hero who eliminated violence and brought peace. After his death, he became the protector of his hometown (Zheng [1679] 1932). In Chengdu, Sichuan Province, the "Xishen Fang Pageant" (游喜神方, meaning to celebrate the direction where Xishen is located to pray for blessings) event, which is held every year during the New Year, is centered on the sacrificial activities of Zhuge Liang (诸葛亮) from the Three Kingdoms period, focusing on his loyalty to his lord. Some people in the northern provinces of China believe that Xishen is a bearded fairy who is primarily responsible for blessing people's homes and lives. Additionally, in some places, the portraits of people's ancestors were also called Xishen at a certain period of time, and they believed that worshipping Xishen during festivals could play a role in ensuring the prosperity of the entire family.

Although the images used to refer to Xishen are not uniform in various places, and the functions and personalities of Xishen are different, they still have two common characteristics: first, they are all incarnations of auspiciousness and happiness, which means that they are "good" gods that people like to see and hear; second, all have spatial and temporal orientations, which is also the point of this article. To be precise, Xishen, which does not have a unified and fixed image, can be identified and marked by the public precisely because of its definite spatial and temporal characteristics. Additionally, because of its uniqueness in space, it has gained lasting influence and popularity among people everywhere. Specifically, the most intuitive manifestation of Xishen's spatial characteristics is the tagging of the "Direction of Xishen" in the lunar calendar. As is shown in Figure 1:

Figure 1. The "Direction of Xishen" in the lunar calendar.

2.2. Auspicious Directions: The Identification of "Direction of Xishen" in Traditional Knowledge

We found that many scholars have paid attention to the far-reaching influence of traditional spatial concepts on Chinese folk life and religious culture. Arthur F Wright believes China has "the longest tradition of city cosmology the world has ever known" (Wright 1977, p. 73). In *The Cosmology of the Chinese City*, Wright wrote that "all civilizations have traditions for choosing sites of fortune for a city and symbol systems for relating the city and its various parts to the gods and the forces of nature . . . Throughout the long record of Chinese city building, we can find ancient and elaborate symbolism for the location and design of cities persisting in the midst of secular change." (Wright 1977, p. 33). We can see

early religious influence in China's urban spatial layout. Wright systematically discussed the relationship between ancient Chinese urban forms and cosmic patterns. He believed that, after a long historical accumulation, this symbolic spatial knowledge about belief and power had a great influence on later urban construction. The French scholar Marcel Granet, who studies ancient Chinese religions and songs, believes that the "Ba La" (八腊, meaning eight kinds of gods) rituals in the pre-Qin period (about 221 BC) contained all the basic rules of the social order, and that these laws are expressed in ritual. Those present were divided into two groups, with one group taking the side of the Master of the Ceremony and the other that of the guests. The position of the guests was fixed by an orientation whose influence, it was believed, connected each group with the opposing forces of the universe—heaven and earth, sun and moon, yang and yin—that decide the rotation and opposition of the seasons. (Granet 1932, p. 172) Marcel Granet observed that the concept of yin and yang dominates traditional Chinese thinking. In religious ceremonies, this idea manifests itself in the fact that the people attending the ceremony are divided into two different groups, and the two groups are placed in two different directions. Such phenomena should arouse our attention, especially when conducting spatial research on Chinese folk religion. As such, we can ask: Why should the position of the participants in religious ceremonies be specified? What do the different orientations mean? Only by knowing the answers to these questions can we understand why Xishen can obtain people's stable worship and belief by virtue of a specific orientation, and how these characteristics of Him reflect people's religious belief concepts.

I Ching can be translated as "*Book of Changes*". Wilhelm and Baynes note that "its origin goes back to mythical antiquity . . . Nearly all that is greatest and most significant in the three thousand years of Chinese cultural history has either taken its inspiration from this book, or has exerted an influence on the interpretation of its text." (Wilhelm and Baynes 1967, p. xlvii). In *Zhouyi Qianzaodu* (周易· 乾凿度), which analyzes and explains the content of *I Ching*, it is written: "I(易) begins with Tai Chi (太极), Tai Chi divides into two, so it gives birth to heaven and earth. In the midst of heaven and earth have four seasons: spring, autumn, winter, and summer. Each of the four seasons has the distinction of yin and yang, rigidity and softness, so Bagua (八卦, The Eight Diagrams) is born. After the order of Bagua was established, the Tao (道, law) of heaven and earth is established. And then the images of thunder, wind, water, fire, mountain, and lake are fixed."[2] (Zheng 1756) This passage briefly introduces the concept of yin and yang through the fact that everything in the world changes and grows.

Traditional knowledge of the occurrence and development of all things is developed from this. In this structure, time and space are integrated and inseparable; there is also a close connection between objectively existing things and events that people face in their social life. This can be seen below.

The north is the upper part of the modern plane map, but in the directions of the Inner-World Arrangement, the south and the southern part, which represent summer and sun, and mean the yang's process of "birth-development-prosperity", are always marked upper. In its primary meaning, yin is "the cloudy," "the overcast," and yang means "banners waving in the sun". Correspondingly, the change and development process of yin is usually shown at the bottom of the diagram. In the process of occurrence and development, the two poles of yin and yang change from rise to fall and are inseparable from each other. This system's logic has been described by Joseph Needham thus:

> "The key-word in Chinese thought is Order and above all Pattern (and, if I may whisper it for the first time, Organism). The symbolic correlations or correspondences all formed part of one colossal pattern. Things behaved in particular ways not necessarily because of prior actions or impulsions of other things, but because their position in the ever-moving cyclical universe was such that they were endowed with intrinsic natures which made that behavior inevitable for them . . . They were thus parts in existential dependence upon the whole world-organism." (Needham 1956, p. 281)

Take one part of Figure 2 as an example: the "Li" hexagram means that the yang energy has reached the extreme. In this state, all things are active and thriving. This represents the south in the orientation, the summer in the four seasons, the noon in the day, and the "fire" in the eight elements, etc. Therefore, the "southeast–south–southwest" and yang orientations in space are considered to be closely related to auspiciousness and happiness.

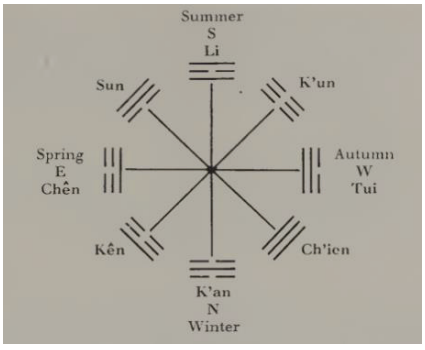


Figure 2. Sequence of Later Heaven, or Inner-World Arrangement (Wilhelm and Baynes 1967, p. 269).

Xishen, which brings auspiciousness and happiness to people, is also inextricably linked with the direction of the south. On the first day of the Lunar New Year, the residents of Chengdu march towards the south of the city to welcome Xishen in an event known as the "Xishen Fang Pageant". This can be seen through historical documents and field investigations, although there are different opinions on the worship of Xishen in different places. However, during the Chinese New Year, offering sacrifices in the direction of Xishen, or welcoming and walking directly in His direction, are widespread belief activities conducted by people. Additionally, the people of Shahe Town will check the almanac on the first few days of the new year, and only when the almanac marks "Xishen in the southeast" will they arrange the ceremony of "Welcoming Xishen".

In their daily lives, people also pray to Xishen and make wishes. The reason why everyone wants to know the auspicious time of the day and the direction of Xishen relates to their hope that everything will go smoothly in their daily lives. This kind of belief and worship is carried out for utilitarian purposes, rather than out of pure reverence for Him.

The order of the world begins with the calibration of time and space, which includes the distinction and expression of orientation, the precise division of time, and even the formulation of the laws of space and time. In such ritual activities, Xishen, which has no unified image or fixed temple, has an orderly spatial expression in the folk belief system as well as a real and sensible set of belief practices. With the determination of this spatial orientation as an anchor, the time and space of worship activities are unified, and a collective cultural expression system can be constructed for value pursuit and life vision.

3. The Admiration for "The Direction of Xishen" Reflects the Traditional Relationship between Man and God and the Concept of Space

Belief in gods plays an important role in people's lives. From the content of the first part of this article, it can be seen that there is no unified image or fixed temple for Xishen. The belief in Him is mainly reflected in the emphasis on "the Direction of Xishen" and through a series of sacrificial practices. It can be seen from this that space plays an important role in the Xishen belief system. The spatial orientation is not only the specific manifestation of Xishen in the real world but also reflects the relationship between man and God with local characteristics, reflecting special traditional belief patterns.

3.1. Pursuing Happiness and Avoiding Ill Luck: Worship Activities Based on Practical Rational Thoughts

In his book *My Country and My People*, Chinese writer Lin Yutang wrote:

> "For the Chinese the end of life lies not in life after death . . . , the Chinese have decided in a singularly clear manner, lies in the enjoyment of a simple life, especially the family life, and in harmonious social relationships . . . This trait, our concentration on earthly happiness, is as much a result as a cause of the absence of religion." (Lin 1936, p. 96)

The above passage accurately summarizes the differences between Chinese folk beliefs and religious beliefs in other countries. Usually, Chinese people do not treat gods with total loyalty and selfless devotion. On the contrary, people believe in the gods under the guidance of secular reason and follow the ethics extracted from secular life. They worship the gods primarily because they want something in their secular life and hope that the gods can help or bless them in their daily life. Arthur P. Wolf's article *Gods, Ghosts and Ancestors* showed the religious activities held in conservative families from the southwestern edge of the Taipei Basin and stated that "the significance of these three acts of worship is largely determined by the worshippers' conception of their social world". (Wolf 1974, p. 131) Other scholars also compare the communication between humans and gods—the ceremonial behavior—as an interpersonal transaction.

The ritual activities of "the Direction of Xishen" also have such characteristics. They are not intended to connect human beings with divine existence through a particular religious space or to highlight the distinction between divine activity and secular life in religious practice. Rather, they are an attempt to induce a superpower to bless their real life. They obtain psychological comfort through the worship of gods; of course, it is a pragmatic and specific purpose comfort, rather than simply looking for spiritual sustenance. This kind of activity is not so much a ritual of worshipping the gods, but rather reflects people's expectations and desires for a better life.

The relationship between gods and human beings is not about domination and obedience, nor is it absolutely powerful or insignificant. People, starting from their own actual and psychological needs, offer something in exchange for the help of the gods in an "interpersonal transaction". Under this relationship model, we seem to be able to understand why traditional Chinese folk gods, such as Caishen, have such a clear function and jurisdiction. Under the guidance of secular reason, people's imagining of the gods also tends to be concrete and utilitarian, which brings the god and people's daily life closer. With this common view, we can understand why people tend to orient Xishen to the southerly direction. It is actually inseparable from secular life. Its answer also needs to be found in a direction that is in line with practical purposes and secular reasons.

3.2. Why the Southerly Directions? An Analysis of the Causes of Local Knowledge of Time and Space

In *the Elementary Forms of Religious Life*, Durkheim cites the Zufii as an example to illustrate that space is a realistic expression of collective culture. They are divided into seven sections, and each of these sections forms a group of clans that has acquired its own unity. Accordingly, space similarly contains seven regions and the division of space changes as the number of clans changes. Durkheim thinks that "different affective colorings have been assigned to regions. And since all men of the same civilization conceive of space in the same manner, it is evidently necessary that these affective colorings and the distinctions that arise from them also be held in common—which implies almost necessarily that they are of social origin." (Durkheim and Fields 1995, p. 11). It shows that the natural environment, historical culture, and other realistic factors have shaped people's understanding of their living space. They use the existing natural and social conditions to shape social space according to their spatial cognition and even transform the natural environment.

In the traditional Chinese spatial knowledge, it is believed that different directions have different meanings, even including opposition between good and ill luck. Among them, the southerly directions are highly welcomed by people. Most people think that only when Xishen is in the southerly direction can it bring them good luck. The formation of this kind of knowledge is closely related to the natural geographical environment and specific historical context. This view has become the consensus in academic circles. The origin of people's behavior has objective natural factors and specific historical context reasons. It includes not only the basic understanding of space and orientation established by the natural environment but also concepts further formed based on the need for political domination and historical reality, such as the interactions of ethnic groups. Some Chinese scholars think that, although the perception of direction is not entirely historical, its causes "can never be completely detached from the reality at the time of their origin." (Tan 1986).

Some scholars hope to explore historical and empirical explanations for each hexagram in the Bagua based on space and time, combined with ancient geographical classics, corresponding to the geographical environment and social environment at that time. For example, in the 1980s, Tan Jiade wrote an article dedicated to analyzing the reasons for the opposition between the southwest and northeast directions shown in the "Kun" hexagram in *I Ching*. The text supplementary to the "Kun" hexagram is "西南得朋，东北丧朋。安正吉" (Wilhelm and Baynes translated the text as "It is favorable to find friends in the west and south, to forego friends in the east and north. Quiet persistence brings good fortune" (Wilhelm and Baynes 1967, p. 11)). Tan believed that if we examine the content of *I Ching* from its historical background, the meaning of this hexagram can be understood as follows: "west and south" refers to the regime of the Zhou Dynasty, the ruler at that time, while "east and north" refers to the Shang regime replaced by the Zhou. The Zhou Dynasty's political measures conformed to the people's will, so it was able to replace Shang. Therefore, Tan thought the "Kun" hexagram describes the tortuous course of the Zhou people's establishment of a dynasty (Tan 1986).

In addition, some scholars explored this topic from the relationship between orientation and culture. Dr. Yang Jixiang believed that orientation has cultural symbolic significance, and we should combine Bagua knowledge to understand traditional Chinese orientation, so as to construct a system for the growth and evolution of everything in the universe (Yang 2007, pp. 108–34). Han Wentao tried to explain in detail why there is such an obvious contrast between good and ill luck in different orientations recorded in *I Ching* from three aspects: natural environment, political situation, and ethnic relations (Han 2016). However, there are age differences between the sources he cited as evidence and the *I Ching*, so it is better not to conclude that these factors had a great influence on the writing of this book. Despite this, his attempt does open new ideas for our research.

In addition, we also need to determine two basic understandings of direction, taking "south" as an example: (1) South is a word for orientation, that does not point to an absolute and definite location, but rather a relative concept of direction. (2) Although south is relative, it generally has a reference point, and the direction of south can be roughly delineated for a certain subject or central location. On the basis of these understandings, our research on the spatial orientation of "the Direction of Xishen" is, in a sense, based on the issue of the lean towards southerly directions in Chinese traditional spatial knowledge. On this basis, we place the knowledge of space back into the historical situation in which this knowledge was produced.

The basic concept of human space originated very early. "All orientation concepts of human society were originally related to the natural environment and phenomena. The rise and fall of the sun is a common feature of all primitive peoples . . . The occurrence of the north-south position is directly related to the natural geographical environment where each tribe lives." (Li 1989, pp. 293–94). In ancient times, when productivity was low, the natural environment largely determined the living conditions and social culture of its inhabitants. China is a continental country located in the northern hemisphere, with a terrain that is high in the west and low in the east. In summer, a warm southeasterly

wind blows from the sea; the climate is warm and humid; it is a good season for all things to grow. When winter comes, the cold air travels from the Mongolian Plateau all the way from north to south; the air is cold and dry, precipitation decreases, and animals and plants struggle to survive. The plains in the middle and lower reaches of the Yangtze River and the Yellow River showed signs of agricultural civilization as early as the Neolithic Age. From the prehistoric architectural sites that have been excavated so far, it can be seen that most of the entrances and windows opened south to enjoy the warm weather and sunshine. Thick walls were built to the north to resist the cold north wind. Due to the actual needs of farming and living, the ancient people unanimously favored the south (which meant "warm") and rejected the north (which meant "cold"). *Han Shu (* 汉书*)*, one of the best-known histories in ancient China records "The sun is in the south. The south means to grow. Yang helps everything grow. The yang is the summer."[3] (Ban [105] 2000, p. 387). Known as one of the basic auspicious directions, the south gives people warmth and light, so it is imbued with the characteristics of beauty, hope, and positivity.

Some scholars believe that when discussing orientation, we must first determine the center. The records of good and ill luck from the directions in *I Ching* first came from the legacy of divination and witchcraft in the Zhou Dynasty. It was not until the Han Dynasty that a relatively fixed text of *I Ching* was finally formed. According to historical records (mainly the *Historical Records* 《史记》), Luoyi (洛邑) in the Zhou Dynasty, which is today's Luoyang City, Henan Province, was the "Centre" at that time. The knowledge of direction is formed with Luoyi as a reference point. Therefore, it is necessary to comprehensively analyze various historical and cultural factors and discern the meaning of spatial orientation from the perspective of "the south of Luoyi". There is also a saying in a book of the Han Dynasty that "vast tracts of land stretch out in all directions, and there is Luoyi in our Zhou Dynasty that is in the center" (Sun). Luoyi and its surrounding areas were the political centers of the Zhou Dynasty. Taking this city as the center, we can see from the historical context of the establishment of the Zhou Dynasty regime that the tribes of the Zhou people and their allied countries defeated their enemy regime from the southwest, and then established their own dynasty. The establishment of the Zhou Dynasty had a profound impact on the later development of Chinese history. During the long historical period of Zhou's destruction of Shang, south and north, or the southerly directions and northerly directions, respectively, became the names of victorious and defeated countries, and thus gradually acquired the symbolic function of distinguishing between superiors and inferiors.

Since ancient times, the Chinese have preferred "locations in the north that face south" when they built and selected residences. When the emperor summoned ministers into the palace, they had to turn their backs to the north and face the south. The Chinese believed that the south represented dignity, while the opposite direction, north, was a symbol of failure and surrender. There is also a Chinese idiom: "the person facing south is the king" (南面称王) (Ban [105] 2000, p. 1153). Therefore, it is natural that folk beliefs considered that the south, the "yang" side, is the location representing auspiciousness and good luck, and that this is also the direction where Xishen is located.

4. Folk Beliefs at the Human Scale—Cases Analysis of the Sacrificial Activities of "The Direction of Xishen"

The Bagua knowledge formed from *I Ching* is a complex, mysterious, and highly technical practical cultural system. For a long time, geomancers have been the authoritative interpreters, disseminators, and practitioners of it. For ordinary people with low literacy levels and busy livelihoods, it is impractical to master these kinds of knowledge. However, this does not mean that ordinary people are clueless about it. On the contrary, they will simplify the knowledge and combine it with their social life and religious etiquette, gradually turning it into a cultural custom to meet the needs of their daily life. For example, grassroots society projects Bagua knowledge into the custom of worshipping Xishen during their marriage ceremony, and the customs of "Welcoming Xishen" (迎喜神), "Xishen Fang

Pageant" (游喜神方, meaning to celebrate towards the direction where Xishen is located to ask for blessings), and "Allaying Xishen" (送喜神, meaning to sendoff Xishen after the worship) during the New Year's Festival. In these practices, complex knowledge becomes useful local knowledge. Therefore, it participates in regional group cultural integration in the construction of meaning in individual life.

In the spatial study of religions, scholars have focused on the importance of the human body. Some scholars think that the physical experience of the body, the interaction between space and the human body, is central to the meaning of religious space (Kilde 2013). Cognitive philosophers George Lakoff and Mark Johnson stressed the pervasiveness of metaphor in our everyday experience and thought processes, and wrote, "these spatial orientations arise from the fact that we have bodies of the sort we have and that they function as they do in their physical environment" (Lakoff and Johnson 1980, p. 14). People establish their religious identities through figurative performances, activities, and behaviors in their daily life, and use their body to produce sacred spaces.

"The Direction of Xishen" is not a fixed and certain religious area. It takes people as the coordinates, starting from the time and space where the individual is located, and is carried through religious activities, such as offering sacrifices or praying for blessings, and is presented in the real space of social life. Additionally, from the perspective of different customs in different places, the activities conducted in "the Direction of Xishen" are not always the same. It is inseparable from "local knowledge".

4.1. Traditional Customs of "Welcoming Xishen" in Shahe Town, Northern Shanxi

Shahe Town belongs to Fanshi County, Xinzhou City, Shanxi Province. It is located in the middle of Fanshi County and the northern part of Shanxi Province, with a permanent population of more than 40,000. There are abundant underground mineral deposits in Shahe Town, including gold, silver, copper, iron, etc. According to the local people, the name Shahe Town is related to the Hutuo River that flows through the town. Shahe Town is rich in folk belief resources, including mainstream Buddhist and Taoist temples, and small temples of folk or local gods, such as the Caishen Temple and the Dragon King Temple. At the same time, Shahe Town has always retained the traditional custom of "welcoming Xishen" during the New Year.

ZXQ was born in Shahe Town in 1932. According to her recollection, every year after the Lunar New Year in Shahe Town, everyone would go to welcome Xishen:

> "Every year, the Xiansheng (先生, referring to a local fortune teller, usually a Taoist clergyman) gave us the direction of Xishen and date to welcome Him. When that day comed, the whole family went to welcome Xishen. This was what our ancestors have done for generations. When it was time to welcome Xishen, we put on new clothes and bring five-color paper, offerings, and incense. Following the direction given by the Xiansheng, we went to the open space near the river beach to kowtow to Xishen, placed offerings, burned incense, and prayed to Xishen to bless the family with a smooth year.
>
> At that time, I was very happy to go out to welcome Xishen, because every household went there at the same time, and I was able to meet many friends and relatives. Since I moved to Xinzhou City, I have never welcomed Xishen. I remember that after liberation, people said that 'Welcoming Xishen' was a superstitious activity, so they were not allowed to do it."

ZXQ left Shahe Town very early due to work. Her younger sister ZFY and her niece ZGZ have always lived in Shahe Town. For them, the tradition of "Welcoming Xishen" during the Chinese New Year has never stopped and continues to this day:

> "I remember when I was a child, the old said that during the New Year, you cannot do anything before finishing the 'Welcoming Xishen'. Nothing can be done without welcoming Xishen. Because of that, we welcome Xishen at home every year, it can bring good luck." (ZGZ)

> "We always welcome Xishen every Chinese New Year, and it was the same when my son took me to the city to celebrate the New Year. On that day, I placed some tributes at home in the direction of Xishen, this is our way to welcome Xishen." (ZFY)

In the middle of the last century, and due to the practical needs of economy, politics, and culture, Chinese society used to believe that traditional cultures such as folk beliefs, Feng Shui, and Bagua were backward products of the old society. The customs of "Welcoming Xishen" did disappear in the public space for a time, just as ZXQ recalled. ZXQ left her hometown very early, so she doesn't know much about what happened afterward. According to the interviews with other people, we can know that, although the activities of "welcoming Xishen" are no longer held collectively and openly, it has not disappeared, and gradually transformed into a private family ritual.[4]

It shows that although knowledge about directions and folk beliefs is not always respected as mainstream culture, and modern people are gradually changing traditional spatial conditions and lifestyles, folk beliefs are actually a kind of "collective unconsciousness" that still exists. It affects people's understanding of the space they live in and affects people's psychological feelings and practical activities in life. From what ZGZ and ZFY said, we can understand that people still have reverence for the auspicious orientation represented by "the Direction of Xishen", and they will also adopt certain sacrificial behaviors. This also reflects a certain extent that the traditional knowledge of time and space of Xishen has always existed in the collective memory of the Chinese people, and it still influences people's thoughts and practices today.

With the further emancipation of the mind at the end of the 20th century, folk multiculturalism gradually revived, and the activity of welcoming Xishen has once again returned to the stage of social life. Zhang Yaru from Zhejiang Normal University recorded the activities performed to welcome Xishen in Shahe Township in recent years. According to her research, in Shahe Town, the "Welcoming Xishen" activity is held in the first few days of the new year whenever Xishen is in the southeast. People leave their homes and start their activities according to the tagging of the "Direction of Xishen" in the lunar calendar. The local people believe that, during the Chinese New Year, the Celestial Bureaucracy will convene a meeting of the gods and, after the meeting, Xishen will return to their people from the southeast. Therefore, each family will see their own house as the starting point, holding three sticks of incense, Huangbiao paper (黄裱纸), and firecrackers, and walk towards the southeast. "Welcoming Xishen" is a ritual activity that every household will spontaneously participate in. If there are sick family members or young children who cannot go out, their relatives will take their underwear outside to symbolize that they also participated in this activity (Zhang 2016).

From the above records, we can see that people usually walk in the southeast direction to welcome Xishen. This is because He and other gods came back from the southeast, which means that the Celestial Bureaucracy—the highest power center of the gods in Chinese folk mythology—is located in the southeast of Shahe Town. Shahe Town is located in the northern part of Shanxi Province. As we mentioned before, since the Zhou Dynasty established political power in Luoyi, the Bagua culture formed during that period naturally placed the center of the world in this place. Luoyi is located to the southeast of Shahe Town, and the activity of welcoming Xishen in Shahe Town also proves the people's preference for the southerly direction and the origin of the location of Xishen.

Zhang Yaru also mentioned in her research that Shahe Town is located at the junction of the Mongolian race and Han ethnic groups, and many local people travel there for business. Therefore, besides its residents, they also take their main conveyances together to join in the "Welcoming Xishen" activities. People prefer to choose to ride a bicycle or drive a car to welcome Xishen. This is related to the means of livelihood of the locals. People doing business need to travel to and from various towns, and their journey can be dangerous. People hope to bring some good luck to their journey by bringing the conveyances to these activities (Zhang 2016).

Here, the "happiness" represented by Xishen has more meaning than a safe journey. In a previous interview, one participant believed that offering sacrifices to Xishen would make her less tired from heavy housework. In the following section, we show that the activities of the "Xishen Fang Pageant" in Chengdu became a way of worshipping and pursuing loyalty. It can be said that the "abstractness" of Xishen makes Him a kind of catch-all god who can accommodate everyone's various wishes. Though the preference for "the Direction of Xishen" stems from some historical factors., in the specific practices, this direction has become a kind of intermediary, and its significance is in expressing the real relationship between man and god in a specific place and the everyday demands of the people.

4.2. Modern Folk Activities of "Xishen Fang Pageant" in Wuhou Temple (武侯祠)

In Chengdu City, the worship of Xishen used to be held in Taoist temples such as Qingyang Temple. Welcoming Xishen was once considered a traditional religious activity in the Spring Festival celebrations of Taoists. The activity of welcoming Xishen in Taoist temples is held on the first day of the first lunar month, and preparations start on the last day of the previous year. This series of activities is primarily led by the leader of the Taoist temple.

On the afternoon of New Year's Eve, the staff in the Taoist temple start preparing incense cases, tributes, etc., setting up incense cases outside the Taoist temple according to the direction of Xishen, and offer Xishen tablets (on weekdays, Xishen tablets and other Taoist gods' tablets are placed in fixed positions in the temple). On the first day of the first lunar month, everyone will welcome Xishen together. They will go to light incense in front of the incense table enshrining Xishen, insert it into the incense burner, and perform three worships and nine knocks. The leader will hold up the tablet of Xishen and put it back into the temple, and ask everyone loudly: "Has Xishen come back?". Everyone replied: "He is back!" After everyone paid New Year's greetings to each other, the ceremony of "Welcoming Xishen" was considered to be done.

With the changes of the times, the activity of welcoming Xishen has gradually changed from a special Taoist religious activity to a folk activity when citizens celebrate the New Year. Citizens spontaneously travel in the direction of Xishen on the first day of the first lunar month and organize some activities to worship Xishen, hoping to receive good luck in the new year.

This is very similar to the "Welcoming Xishen" activity mentioned above. The difference is that "Welcoming Xishen" focuses on worshiping in the direction of Xishen, while Chengdu residents place more emphasis on the dynamic process of the pageant. The process of moving towards the direction of Xishen is also a good opportunity for small vendors in the city to hold kirmess to sell goods during the Chinese New Year, and for citizens to go shopping and have fun. With this, the "Xishen Fang Pageant" has become a popular activity for Chengdu citizens during the Chinese New Year.

Yu Jiajia from the Southwestern University of Finance and Economics recorded the annual "Xishen Fang Pageant" at Wuhou Temple in Chengdu, Sichuan Province. Wuhou Temple is a place to commemorate Zhuge Liang (诸葛亮), the prime minister of the Shu Han (蜀汉) Dynasty in ancient China. This activity is a sacrificial activity in which Chengdu residents go to Wuhou Temple on the first day of the first lunar month every year. In recent years, it has been promoted by the local government, and it is also reported on by a large number of media professionals every year (Yu 2021).

Yu's research show that, since the 1980s, as the organization and holding space of the New Year's Festival temple fair has shifted from the traditional Taoist temples to Wuhou Temple; the image of Xishen recognized and accepted by the public has also been transformed from the vulgar god into "Zhuge Liang", a historical figure known for his loyalty. The change of the space carrier represents the change of the core of spiritual thought from Taoism to Confucianism. At the same time, the "Xishen Fang Pageant" endowed the space of Wuhou Temple with more divinity and functions. Luo Kaiyu focused on the "Xishen

Fang Pageant" customs of the Chengdu people. He introduced the literature records on Chengdu's New Year 's celebrations since the end of the Qing Dynasty and recorded the folk customs of the "Xishen Fang Pageant" at Wuhou Temple in recent years. According to his investigation, Chengdu people have always had the custom of going to various temples to worship gods to pray for good luck during the New Year. Among them, the sacrificial activities held in Wuhou Temple were the most lively and grand. The "Xishen Fang Pageant" activities, which were held in Wuhou Temple and regarded Zhuge Liang as Xishen, started in 1998. From then on, the "Xishen Fang Pageant" has primarily become a sacrificial activity to Zhuge Liang (Luo 2005).

Different from the previous cases, the government encouraged the masses to participate in the "Xishen Fang Pageant" held in Wuhou Temple, which is a kind of "contemporary transformation" of the activities of worshiping Xishen. Different from the traditional relationship between man and god, official power is now added to form a new shaping of social relationships. Endowing Xishen with the spirit of "loyalty" will help to enhance people's sense of identity with mainstream values. This does not only enhance the value of local cultural symbols but also promotes the inheritance and development of traditional folk customs. This also reminds us that, in spatial study, in addition to the specific physical space, we must also pay attention to the development of symbolic cultural space. This is especially important in contemporary times, when various cultural forces interact in society. Although some folk customs still follow traditional steps and models, the cultural connotations and meanings they expressed have changed with the times.

4.3. "Allaying Xishen" after the Wedding Ceremony

In 2019, we held a conversation with a Taoist priest called Tian from Xuanmiao Taoist Temple. He believes that although there are great differences in regional cultures, people generally don't allay Xishen because they think it may send their happiness away.[5]

However, according to many records, the ritual of "Allaying Xishen" is always held after the wedding ceremony in some areas. Usually, at the wedding, Xishen is welcomed to bless the couple a happy married life. But in the early morning of the day after the wedding, married people will hold a ceremony to allay Xishen. After that, the married couple commence normal social activities. In some places, it is said that people who have not allay Xishen after their wedding ceremony cannot go to other people's weddings.

In some ethnic minority areas in southern China, the ceremony of "Allaying Xishen" is as follows:

Early in the morning of the second day of the wedding, the matchmaker will urge the bride to allay Xishen. The bridegroom and his family will place a table in the main hall with two stools on both sides. On the table, there is a pot of cut fat pork and a jug of wine. The pork was half cooked. Four matchmakers sit on benches on either side. The matchmakers from the bride's side will sing a folk ditty to allay Xishen. The main idea of ditty is: the master is optimistic about the good day, so that the two young people can get married . . . wish them a happy life and an early birth to a precious son. The singing time is very long and sometimes can take more than an hour.

It is generally believed that a wedding banquet with a large number of guests and a lively ceremony will inevitably attract evil things such as monsters and ghosts from the vicinity to attend. Therefore, the "Allaying Xishen" ceremony needs to be held to drive away these demons and ghosts while sending Xishen back to heaven.

5. Epilogue

The sociologist of religion Peter L. Berger believes that religion "has played a strategic part in the human enterprise of world-building." (Berger 1990, p. 37). It means the projection of the human order into the totality of existence, which envisions the entire universe as meaningful to human beings. The belief in Xishen may not be ascribed to a systematic religion, but the Bagua knowledge behind it contains a unique interpretation system for the concept of "harmony between heaven and man" and other cosmic concepts. This is an

attempt to give meaning to life in the world and to interpret the value of life through the order of the universe. The research of spatial elements in the belief in Xishen allows us to perceive the cultural ecology of folk beliefs, social customs, and secular rationality. As we stated in the first part of this article, to a certain extent, there is a symbiotic relationship between Chinese religious belief and secular life, and the dichotomy between the sacred and the secular may not necessarily apply to Chinese society. Although Bagua knowledge is mystical knowledge, it also provides a set of cultural symbol schema for understanding real life. Additionally, as a cultural interpretation system, it provides a place for individual life to settle.

In fact, the spatial study of Chinese folk religion should not leave the discourse environment of the integration of time and space as our ancestors thought that time, space, body, and mind are related and inseparable. "The Direction of Xishen" has become a religious spatial practice by opening up the connection between religious space and secular life, behind which lies the shaping of social relations. "Welcoming", "allaying", and the pageant, activities closely related to the human body, are all specific ways of presenting the spatial practice of "the Direction of Xishen". Folk religion has an inseparable connection with the masses in the specific practice process and gains lasting vitality from this process.

Space exists naturally, and human construction behaviors make space meaningful. On the one hand, the judgment and choice of good or ill orientation do reflect the function and meaning that human subjective concepts give to natural space; on the other hand, it is the objective existence of natural space that influences people's productive life and shows a cultural expression in society. This makes space and directions not only a tangible concept but also a spiritual space full of symbolic meanings influenced by social culture and folk beliefs. Through these cultural traditions, certain regular patterns and norms are formed. They guide and constrain people's daily behavior and ritual behavior.

This article takes the worship of Xishen as the analysis object, and describes and explains the Chinese people's concept of space and the relationship between man and gods in folk beliefs. This article tries to show that the determination and selection of the "Direction of Xishen" contain rich cultural significance and shows the spatial concept that takes the south as the location representing auspiciousness and good luck. It shows the integration of "time-space-man" into traditional Chinese culture.

The worship of Xishen has the inheritance of time and universality in space in social life. At the same time, it has also developed unique ritual practices and belief systems in different regions, shaping different collective memories and behavioral norms. Although the current cultural practice of "the Direction of Xishen" is different from the previous folk belief ceremonies in terms of form and connotation, it has been passed down to this day and still plays an important role in festival celebrations and wedding ceremonies. These phenomena also convey the theme that "traditional folk beliefs and customs represented by the worship of Xishen still play an important role in our daily life".

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Not applicable.

Conflicts of Interest: The author declares no conflict of interest.

Notes

1 The original Chinese text is: " . . . 道天地，喜神出，助人治，令人寿，四夷却." From *Taiping Jing* (太平经).

2 The original Chinese text is: "易始于太极，太极分而为二，故生天地。天地有春秋冬夏之节，故生四时。四时各有阴阳刚柔之分，故生八卦。八卦成列，天地之道立，雷风水火山泽之象定矣" from *Zhouyi Qianzaodu* (周易· 乾凿度).

3 The original Chinese text is: " 太阳者，南方。南，任也，阳气任养万物，于时为夏" from *Han Shu* (汉书).

4 The three interviewees were all from Shahe Township, Shanxi Province, and the interviews with them were mainly conducted by telephone. Interview time: 23 December, 28 December, and 30 December 2022.

[5] The interview with Tian was mainly conducted through online chat, interview time: December 2019.

References

Ban, Gu 班固. 2000. *Han Shu* 汉书. Hangzhou: Zhejiang Ancient Books Publishing House. First published 105.

Berger, Peter L. 1990. *The Sacred Canopy: Elements of a Sociological Theory of Religion*. New York: Anchor.

Chau, Adam-Yuet. 2005. The Politics of Legitimation and the Revival of Popular Religion in Shaanbei, North- Central China. *Modern China* 31: 236–78. [CrossRef]

Chau, Adam-Yuet. 2006. *Miraculous Response: Doing Popular Religion in Contemporary China*. Stanford: Stanford University Press.

Chen, Cunsheng 陈春声. 2019. *Faith and Order* 信仰与秩序——明清粤东与台湾民间神明崇拜研究. Beijing: Zhonghua Shuju, pp. 1–6.

Chen, Guoyong 陈国勇. 2003. *Taiping Jing* 太平经. Edited by Guoyong Chen. Nanning: Guangxi Nationalities Publishing House. First published 1445.

Durkheim, Emile, and Karen E. Fields. 1995. *The Elementary Forms of Religious Life*. New York: Free.

Giddens, Anthony. 1979. *Central Problems in Social Theory*. London: MacMillan Education Ltd.

Granet, Marcel. 1932. *Festivals and Songs of Ancient China*. New York: E. P. Dutton & Company.

Han, Wentao. 2016. On the Opposition of Fortune and Misfortune in Position from The Book of Change 论《周易》方位吉凶对立——以"西南"与"东北"为中心. *Journal of Hefei Normal University* 34: 34–38. Available online: https://kns.cnki.net/kcms/detail/detail.aspx?dbcode=CJFD&dbname=CJFDLAST2016&filename=AFJY201604008&uniplatform=NZKPT&v=QXng3YWEcAtigw1gwSGHrnCfwIz0p0byBBlPBH329GOOsy-jrV-HjMYWb8VUACsG (accessed on 29 September 2022).

Jin, Ze. 2006. Hamonious Development: Challenge and Option Faced by Folk Religion 能否和谐发展：民间信仰面临的挑战与选择. *Journal of Fujian Institute of Socialism* 1: 38–42. Available online: https://oversea.cnki.net/KCMS/detail/detail.aspx?dbcode=CJFD&dbname=CJFD2006&filename=FJSH200601009&uniplatform=OVERSEA&v=LOCMEuoXtzT0UBJI439eN1wjA5fTdawFzjqVF8jfDwVWTINrmGi6XTzbttChBuoR (accessed on 22 February 2023).

Kilde, Jeanne Halgren. 2013. Approaching Religious Space: An Overview of Theories, Methods, and Challenges in Religious Studies. *Religion & Theology* 20: 183–201.

Lakoff, George, and Mark Johnson. 1980. *Metaphors We Live By*. Chicago and London: The University of Chicago Press.

Li, Jingyuan 李景源. 1989. *Prehistoric Cognition Research* 史前认识研究. Changsha: Hunan Education Publishing House.

Li, Yiyuan 李亦园. 2004. *Religion and Mythology* 宗教与神话. Guilin: Guangxi Normal University Press.

Lin, Yutang. 1936. *My Country and My People*. New York: Reynal & Hitchcock.

Luo, Kaiyu. 2005. Research in the "Xishen Fang Pageant" Customs "游喜神方"习俗考. *Journal of Chengdu University (Social Science)* 6: 89–94. Available online: https://oversea.cnki.net/KCMS/detail/detail.aspx?dbcode=CJFD&dbname=CJFD2005&filename=CDDB200506015&uniplatform=OVERSEA&v=8bhJvqPukbEDZnPRORCuTPM0n8MBRzMfRZVfJBfdfjs914a7but0eVqizyJXaw8d (accessed on 29 September 2022).

Needham, Joseph. 1956. *Science and Civilization in China*. Cambridge: Cambridge University Press, vol. 2.

Simmel, Georg, Anthony J. Blasi, Anton K. Jacobs, and Mathew J. Kanjirathinkal. 2009. *Sociology: Inquiries into the Construction of Social Forms*. Boston: Brill.

Sun, Jue [明] 孙鼓. 1889 光绪十五年. *Xiaojing Yuanshenqi* 孝经援神契. Shanghai: Hongwen Shuju.

Tan, Jiade 谈嘉德. 1986. The "Kun" hexagram's southwest and northeast 《坤卦》的西南、东北. *Journal of Shaanxi Normal University (Philosophy and Social Sciences Edition)* 2: 82–84. Available online: https://kns.cnki.net/kcms/detail/detail.aspx?dbcode=CJFD&dbname=CJFD8589&filename=SXSS198602014&uniplatform=NZKPT&v=DM-1-7DkPFHn1DoeubGYSe4_PB541GgtiCd3qwm_M1tJ1yzp-LjzyNYIgYUf8aeV (accessed on 29 September 2022).

Watanabe, Yoshio, and Xing Zhou, trans. 1998. *The Folk Religion of the Han Nationality: A Study in Social Anthropology* 汉族的民俗宗教. Tianjin: Tianjin People's Publishing House.

Wilhelm, Richard, and Cary F. Baynes. 1967. *The I Ching or Book of Changes*. Princeton: Princeton University Press.

Wolf, Arthur. 1974. Gods, Ghosts, and Ancestors. In *Religion and Ritual in Chinese Society*. Edited by P. Wolf Arthur. Stanford: Stanford University Press.

Wright, Authur F. 1977. The Cosmology of the Chinese City. In *The City in Late Imperial China*. Edited by G. William Skinner. Stanford: Stanford University Press.

Wu, Bing'an 乌丙安. 1985. *Chinese Folklore Studies* 中国民俗学. Shenyang: Liaoning University Publishing House.

Xu, Zhonglin [明] 许仲琳. 2017. *Fengshen Yanyi* 封神演义. Beijing: Huaxia Publishing House. First published 1621.

Yang, Jixiang 杨济襄. 2007. The Cultural Significance and Academic Value of the Concept of Orientation from Zhouyi 《周易》经传方位观念的文化意义与学术价值. In *Scholars' Interpretation of I Ching* 周易集释. Edited by Liu Dajun. Shanghai: Shanghai Classics Publishing House.

Yu, Jiajia 余佳佳. 2021. Research on the Image and Modern Value of Xishen in Wuhouci-Take Youxi Shenfang Antique Sacrificial Activities as an Example 武侯祠喜神形象及其现代价值研究. Master's dissertation, Southwestern University of Finance and Economics, Chengdu, China. Available online: https://kns.cnki.net/KCMS/detail/detail.aspx?dbname=CMFDTEMP&filename=1021734266.nh (accessed on 30 September 2022). [CrossRef]

Zhang, Yaru 张亚如. 2016. The Research About Meeting the God of Joy in Shahe Town in th North of Shanxi 晋北砂河镇正月“迎喜神”习俗研究. Master's dissertation, Zhejiang Normal University, Jinhua, China. Available online: https://kns.cnki.net/KCMS/detail/detail.aspx?dbname=CMFD201701&filename=1016291130.nh (accessed on 30 September 2022).
Zheng, Man [明] 郑鄤. 1932. *Miyang Caotang Shiwenji* 峚阳草堂诗文集. Beijing: Erudition 爱如生中国基本古籍库. First published 1679. Available online: http://er07.com/home/pro_3.html (accessed on 20 September 2022).
Zheng, Xuan [汉] 郑玄. 1756. *Zhouyi Qianzaodu* 周易乾凿度. Annotated by Zheng Xuan. Yayutang 雅雨堂.

religions

MDPI

Article

A Spatial Study of the Relics of Chinese Tomb Murals

Yizhen Shi and Xiaoyang Wang *

School of Art, Southeast University, Nanjing 211189, China
* Correspondence: 101011372@seu.edu.cn

Abstract: China has numerous relics from tomb murals. Over 70 years (1949–2019), 1495 relic sites were excavated. Distributed across more than two-thirds of China's provincial administrative regions, the relics of tomb murals span from the Han Dynasty (206 BC–220 AD) to the Qing Dynasty (1644–1911). In previous studies, scholars focused on the qualitative analysis of tomb murals. In this paper, we applied GIS tools to visualize these relics and analyze their density values for the first time. In terms of academic standards, we propose the material distribution index, the regional distribution index, and the temporal distribution index for relics. The academic innovation of this paper is threefold. First, with regard to the distribution of relic sites, this paper draws a distribution map of the relic sites of Chinese tomb murals and explores the preliminary significance of these relic sites in the culture of the Yellow River basin and its ancient political center. Second, in terms of synchronic viewpoints, this paper designs a material distribution map and a kernel density distribution map based on the distribution map of relic sites. Third, from a diachronic viewpoint, this paper sketches the secondary-level distribution map of six historical periods for the overall kernel density distribution map of relic materials in nine provinces, whereby it outlines the general trend of the development of Chinese tomb murals and the contributions of nine provinces. In brief, with the use of the GIS tool, this paper obtains information on the distribution of relics and reveals the characteristics of tomb murals in terms of their regional and temporal distributions through the ranking of various density values. This paper aims to construct a frame of reference for testing traditional theoretical achievements from the two perspectives of information acquisition and theoretical analysis.

Keywords: Chinese tomb murals; spatial study of religions; GIS; spatial analysis

Citation: Shi, Yizhen, and Xiaoyang Wang. 2023. A Spatial Study of the Relics of Chinese Tomb Murals. *Religions* 14: 166. https://doi.org/10.3390/rel14020166

Academic Editor: Z. George Hong

Received: 23 November 2022
Revised: 19 January 2023
Accepted: 20 January 2023
Published: 29 January 2023

1. Introduction

In the historical development of global art, tomb murals represent a unique phenomenon within religious art. Tomb murals are found underground; their theme involves the imagination of the afterlife, and their content concerns the description of the present life. Accordingly, tomb murals are concerned with juxtaposed relationships. In terms of their spatial location, tomb murals exist underground, in parallel with ground art. In the communication model, tomb murals remain intact after being created and become popular after being excavated by archaeologists in later generations, in parallel with open-air art. In terms of content, tomb murals depict how tomb owners and tomb builders envisage the afterlife, depicting religious art in parallel with secular art. The combination of these three juxtaposed relationships endows tomb murals with distinctive value for spatial research.

This paper considers the explicitly religious attributes of tomb murals. All of the images on tomb murals imagine the tomb owner and related people in the other world. Specifically, a tomb mural has three religious attributes. First, thematically speaking, it often shows that the tomb owner hopes to experience the rebirth of life extension in the other world. Second, considering the participants in tomb murals, the tomb owner and other participants in the tomb recognize the transformation of life and death, and their behavior is religious. Third, in terms of artistic characteristics, tomb murals exist underground. This is a closed structure, which is different from an open structure at ground level. In other words, tomb murals are underground mural relics that express the experience of rebirth.

China has the largest number of tomb mural relics in the world. At present, 1495 relic sites have been excavated. Chinese scholars have also achieved highly significant results in their research on tomb murals. In the CNKI database, under the theme "tomb mural", 1235 papers published since 2010 can be retrieved. Foreign scholars show less interest than their Chinese peers. In the JSTOR database, under the theme "Chinese tomb mural", only 143 papers dating from 2010 can be retrieved. In the WOS (Web of Science) database, under the theme "Chinese tomb mural", just 119 papers written after 2010 can be retrieved. In the ResearchGate database, under the theme "Chinese tomb mural", only 90 papers written after 2010 can be retrieved.

Situated in the field of the theoretical study of world religions, this paper is the first to use the GIS tool to research Chinese tomb murals. Jeanne Halgren Kilde observes that "In the past few decades, scholars' interest in and understanding of the many roles played by space in the construction of religious meaning has advanced significantly. Drawing upon analytical models from a variety of disciplines—sociology and social theory, geography and architecture, and literary and critical theory in particular—scholars have interrogated the role of space as a constitutive component in the formation of religious meaning and experience." (Kilde 2014). Despite their theoretical achievements, they fail to address Chinese tomb murals.

In terms of spatial research, there are a substantial number of Chinese tomb mural relics with complete geographical information. Synchronically, these relic sites are scattered across 27 provincial administrative regions. Diachronically, these relic sites span from the Han Dynasty to the Qing Dynasty. Therefore, this paper emphasizes the importance of relic sites to spatial research, aiming to visualize the distribution of Chinese tomb mural relic sites.[1]

With a long history and wide distribution, Chinese tomb murals offer a deeply material sense of national identity. In Spatiality and Religion, John Corrigan argues that "Indeed, religion has a way of developing in conjunction with national identity so that a national landscape often is contoured in explicitly religious ways." (Warf and Arias 2009). This paper uses the GIS tool to analyze tomb mural relics and explore the national landscape composing of a large number of relics. To this end, this paper designs three basic index systems. The first is the distribution index of the types of relics. Chinese tomb murals encompass complex types. Concerning materials, tomb murals are largely made of mud, stone, and brick. To put it another way, the material is used as an index to divide the three types of tomb murals, i.e., the mud type, the stone type, and the brick type. In "Materializing the Bible: A Digital Scholarship Project from the Anthropology of Religion", James S. Bielo and Claire Vaughn affirm that: "Religious actors use material forms to address the central problems that define their religious tradition (s), such as authority, belonging, and presence." (Cantwell and Petersen 2021). Scholars hold the view that tomb murals denote a religious act, and the division of material means the division of the "corporeal form". In this way, the distribution characteristics of Chinese tomb mural relics can be scrutinized. The second index system is the regional distribution index of relics. China comprises a vast territory with complex regional divisions. The name of this one place varies across ancient and contemporary periods. This paper refers to the current administrative units. Simultaneously, as the excavation of tomb murals was mainly carried out during the last century, current administrative units present the contemporary distribution of relic sites. Therefore, this paper chooses 34 current provincial administrative regions (provinces) to assess the regional distribution index of relics. The third index is the temporal distribution index of relics. The existing scholarship of Chinese tomb murals takes the horizontal cave tomb (from the Han Dynasty) as its primary research object (Huang 1996). Moreover, Chinese history generally consists of six stages, i.e., the Han Dynasty; the Wei, Jin, Southern, and Northern Dynasties; the Sui, Tang, and Five Dynasties; the Song, Liao, Jin, and Western Xia Dynasties; the Yuan Dynasty; and the Ming and Qing Dynasties (Wang 2018). To clearly determine its temporal boundaries, this paper takes these six stages as the temporal distribution index for relics. The three index systems help to effectively identify materials for spatial research and to discuss tomb murals (as visual images).

2. Design and Analysis of the Distribution Map of the Number of Relic Sites

The following map displays the distribution of the number of Chinese tomb mural relic sites.

2.1. Data Source

In terms of information sources, this paper collects data from "Research on Archaeological Chronicles of Chinese Religious Arts (1949–2019)[2], a National Social Science Fund of China Key Project (No.: 17AZJ002), which was concluded in 2020. The project surveys 70 years of archaeological materials related to Chinese tomb murals from 1949 to 2019, and therefore currently provides the most complete dataset.

2.2. Index of Numerical Distribution

This paper designs two indexes: a data index, which refers to the number of Chinese tomb mural relic sites (1495); and a spatial index, generated according to contemporary provincial administrative regions in China (34).

Based on these two indexes, this paper draws a distribution map of the number of Chinese tomb mural relic sites using the GIS tool (see Figure 1).

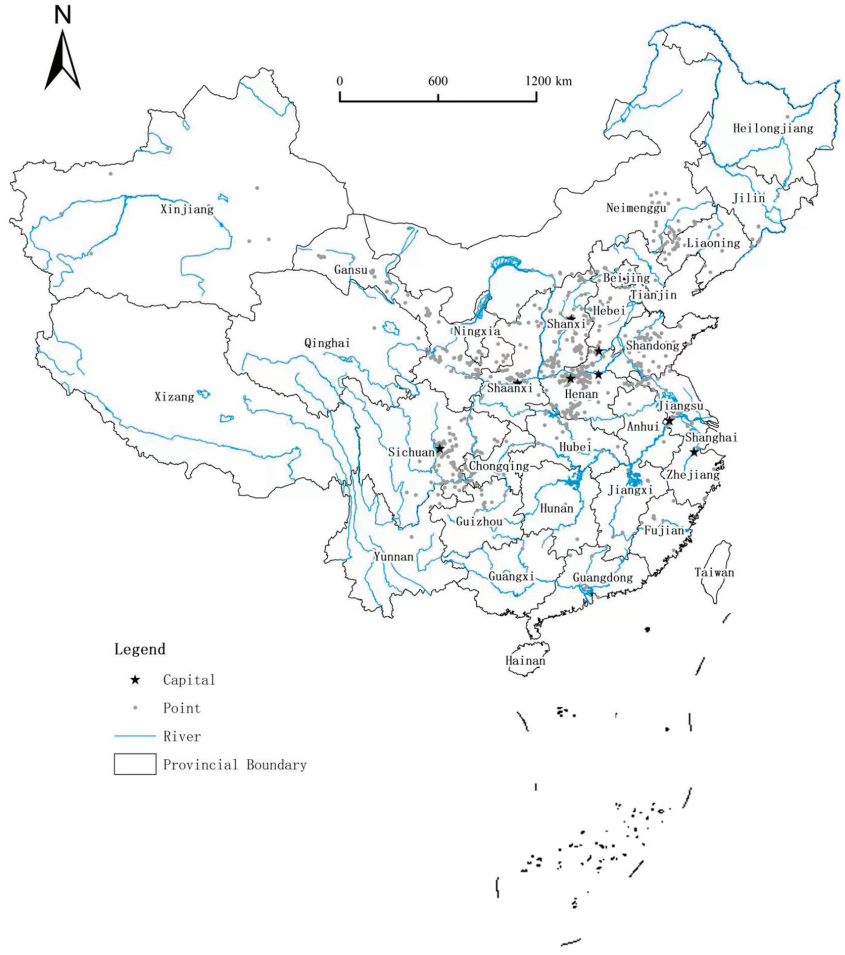


Figure 1. Distribution map of Chinese tomb mural relic sites.

2.3. Analysis of the Numerical Distribution Map

Relic sites are found widely across China. Tomb mural relics have been found in 27 of the 34 provincial administrative regions, demonstrating that tomb murals are a nationwide religious phenomenon.[3]

Moreover, a large number of relic sites are distributed in the Yellow River basin. The Yellow River basin winds through nine provinces, i.e., Qinghai, Gansu, Ningxia (the upper reaches), Shanxi, Sha'anxi, Inner Mongolia (the middle reaches), and Henan and Shandong (the lower reaches), accounting for 78.80% of the total relic sites. It is clear that the cultural regions near the Yellow River basin played a significant role in fostering the development of Chinese tomb murals (see Table 1).

Table 1. Survey of tomb mural relic sites in provinces near the Yellow River basin.

No.	Provinces along the Yellow River Basin (Editorial Department of Encyclopedia of China Press 1992)	Number of Relics	Proportion (%)	Ranking
1	Qinghai	3	0.20	9
2	Sichuan	250	16.72	2
3	Gansu	146	9.77	4
4	Ningxia Hui Autonomous Region	16	1.07	8
5	Inner Mongolia Autonomous Region	85	5.69	6
6	Sha'anxi	122	8.16	5
7	Shanxi	217	14.52	3
8	Henan	266	17.79	1
9	Shandong	73	4.88	7

The distribution of relic sites shows a positive correlation with areas considered political centers. Among the 27 provinces with tomb mural relic sites, this paper introduces the index of ten ancient capitals[4]. The proportion of tomb mural relics in ancient capitals constitutes 60.74% of the total. Therefore, the distribution of tomb mural relics has close ties with the political centers of various dynasties (see Table 2). In particular, Henan has the largest number of ancient capital relics, accounting for 17.79% of the total.

Table 2. Statistics related to tomb mural relic sites in the provinces where ten ancient capitals are located.

No.	Ten Ancient Capitals in China	Provinces	Han Dynasty	Wei, Jin, Southern, and Northern Dynasties	Sui, Tang, and Five Dynasties	Song, Liao, Jin, and Western Xia Dynasties	Yuan Dynasty	Ming and Qing Dynasties	Proportion (%)
1	Xi'an	Sha'anxi	27	8	75	7	4	1	8.16
2	Luoyang	Henan	131	15	17	95	1	7	17.79
3	Faifeng								
4	Anyang								
5	Zhengzhou								
6	Beijing	Beijing	0	1	0	9	1	0	0.74
7	Nanjing	Jiangsu	19	15	1	1	0	1	2.47
8	Hangzhou	Zhejiang	2	0	2	1	0	0	0.33
9	Datong	Shanxi	12	26	18	129	31	1	14.52
10	Chengdu	Sichuan	150	4	14	62	0	20	16.72

3. Distribution of the Types of Relic Sites and the Kernel Density Distribution in Major Regions

In synchronic terms, this paper discusses the distribution of the types of relic sites and the kernel density distribution in major regions.

Having drawn the distribution map of Chinese tomb mural relic sites, this paper attains a general understanding of the number of relics, and is therefore able to calculate the differences between the selected provinces. Notably, the sizes and types of these provinces vary. This raises the question of how these two factors influence the sites in each province. To solve this problem, we drew a distribution map and a distribution density table based on the types of tomb mural relic sites to accurately measure the contributions of these provinces.

Distribution Map Index and Basic Density Statistics.

3.1. Distribution Map Index

Based on "The Distribution Map of the Number of Chinese Tomb mural Relic Sites" (the number of relic sites and provinces), this paper adds the three deep-analysis indexes of mud density, brick density, and stone density and recollects the statistical data, so as to obtain a more accurate understanding via data visualization (see Figure 2).

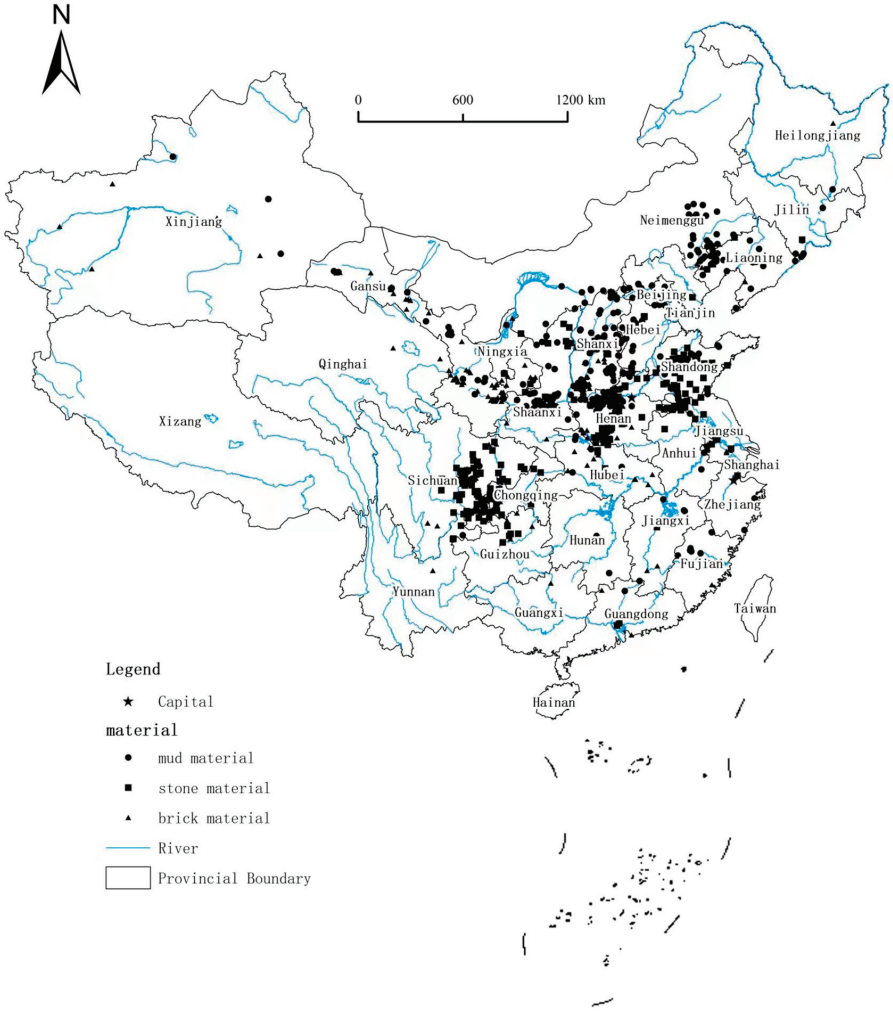


Figure 2. Distribution map of the types of Chinese tomb mural relics.

The visual expression of the data reveals that the distribution of mud and stone tomb murals shows a south–north trend, while the distribution of brick tomb murals is proportionate. To better explain the distribution of types, we produced basic density statistics.

3.2. Basic Density Statistics of the Distribution of Types

We drafted a distribution density table for the types of Chinese tomb murals (see Table 3) and analyzed the density values of these provinces in descending order. The average density values of the indexes are as follows: overall density 3.00, mud density 1.46, brick density 0.66, and stone density 0.91. The shaded parts in the table indicate the provinces with lower-than-average density values.

Table 3. Distribution density of the types of Chinese tomb murals.

No.	Provinces	Overall Density	Mud Density	Brick Density	Stone Density	Number of Relic Sites
1	Henan	15.93	5.75	4.61	5.57	266
2	Shanxi	13.858	8.62	3.77	1.47	217
3	Beijing	6.70	6.70	0.00	0.00	11
4	Sha'anxi	5.93	4.42	0.15	1.36	122
5	Sichuan	5.14	0.165	1.21	3.77	250
6	Shandong	4.69	1.669	0.13	2.89	73
7	Chongqing	3.88	0.00	0.36	3.52	32
8	Jiangsu	3.59	0.58	1.16	1.84	37
9	Gansu	3.43	0.96	2.40	0.07	146
10	Hebei	2.54	2.07	0.11	0.37	48
11	Liaoning	2.50	2.16	0.14	0.20	37
12	Ningxia Hui Autonomous Region	2.41	1.05	0.75	0.60	16
13	Guizhou	1.59	0.00	0.74	0.85	28
14	Hubei	1.35	0.38	0.75	0.22	25
15	Fujian	1.29	1.05	0.24	0.00	16
16	Jilin	0.85	0.85	0.00	0.00	16
17	Anhui	0.79	0.00	0.14	0.64	11
18	Inner Mongolia Autonomous Region	0.72	0.64	0.05	0.03	85
19	Jiangxi	0.48	0.30	0.12	0.06	8
20	Zhejiang	0.48	0.29	0.10	0.10	5
21	Guangdong	0.22	0.11	0.06	0.06	4
22	Yunnan	0.18	0.03	0.08	0.08	6
23	Xinjiang Uygur Autonomous Region	0.18	0.07	0.11	0.00	29
24	Hunan	0.09	0.09	0.00	0.00	2
25	Qinghai	0.04	0.00	0.04	0.00	3
26	Heilongjiang	0.02	0.02	0.00	0.00	1
27	Guangxi	0.02	0.00	0.02	0.00	1

① Rankings of the Contributions of the Type Density Distribution

There are seven provinces with above-average values for mud density: Shanxi, Beijing, Henan, Sha'anxi, Liaoning, Hebei, and Shandong (in descending order).

There are eight provinces with above-average values for brick density: Henan, Shanxi, Gansu, Sichuan, Jiangsu, Ningxia, Hubei, and Guizhou (in descending order).

There are seven provinces with above-average values for stone density: Henan, Sichuan, Chongqing, Shandong, Jiangsu, Sha'anxi, Shanxi, and Guizhou (in descending order).

In general, Henan and Shanxi rank in the top two in terms of overall density, with values two to three times higher than those of the other provinces.

② Ranking the Choice of Types in Terms of the Density Distribution

Using the table of type density distributions, we ranked the chosen types of tomb murals in various provinces. The mud type ranked first. Mud was chosen in 22 regions, accounting for 81.48% of the tomb murals. Mud-type tomb murals were not found in Chongqing, Guizhou, Anhui, Qinghai, or Guangxi. The brick type ranked second. Brick was evidenced in 23 provinces, accounting for 85.18%; it was not found in Beijing, Jilin, Hunan, and Heilongjiang. The stone type ranked third. Stone was found in 19 provinces, accounting for 70.37% of tomb murals, but was not evidenced in Beijing, Fujian, Jilin, Xinjiang, Hunan, Qinghai, Heilongjiang, or Guangxi. The reasons remain unclear.

③ Henan and Shanxi Take the Lead in the Distribution of the Type Density

The distribution data of the ten ancient capitals mentioned above revealed that the density values for Henan and Shanxi were very high, which can be associated with their roles as political centers. The relics of tomb murals in these regions are usually large in scale. This suggests that the tomb owners were very wealthy or enjoyed high political status. Henan and Shanxi served as capitals during the course of Chinese history. In Henan, Luoyang was the capital of the Eastern Han Dynasty, the Western Jin Dynasty, and the Northern Wei Dynasty. Kaifeng was the capital of the Northern Song Dynasty. In Shanxi, Pingcheng (present-day Datong) was the capital of the Northern Wei Dynasty, and Taiyuan was the capital of the Five Dynasties and Ten Kingdoms. The high-density values of Henan and Taiyuan attest to the connection between the development of tomb murals and political evolution, as stated in Approaching Religious Space: An Overview of Theories, Methods, and Challenges in Religious Studies: "Space, as any reading of the recent literature on identity will show (in terms such as the politics of location, the critical space of the margin, third space, etc.), is also a mental or conceptual dimension, one which may float free of any physical mooring, but which uses the notion of space metaphorically and may provide a means of imagining and giving expression to human possibility, cultural difference, the imagination itself, as well as social relations." Kilde (2014).

④ Analysis of High-Density Regions

There are nine provinces with above-average-density values, which are referred to as high-density regions. Therefore, this paper analyzes the high-density regions (Figure 3).

In descending order, the provinces with above-average overall density are Henan, Shanxi, Beijing, Sha'anxi, Sichuan, Shandong, Chongqing, Jiangsu, and Gansu. The Yellow River passes through six of these provinces, and ten provinces have ancient capital cities (barring Gansu). Notably, Gansu cities served as capitals historically. For instance, in the Sixteen Kingdoms, Lanzhou was the capital of the Western Qin Dynasty (385–400) and the capital of the Later Liang Dynasty (386–403). Meanwhile, Jiuquan was the capital of the Western Liang Dynasty (400–421).

As stated above, the distribution map of the density of the types of relic sites in nine provinces shows the major distribution regions of Chinese tomb murals and clarifies the correlation between regional cultures and the contributions of relic sites. Describing space in her Spatial Theory and Method for the Study of Religion, Kim Knott stated that "social and cultural theory has reconceived 'space' as dynamic, in terms of its relationship to power, history and time, its condition of simultaneity and the various ways in which it is experienced and represented. No longer is it seen as the passive container or backdrop for human activity. It is thoroughly enmeshed in embodiment and everyday practice, knowledge and discourse, and in processes of production and reproduction, and consequently it is enmeshed in religion no less than in other areas of social and cultural life" (Knott 2005). As such, it is necessary to further consider the spatial relationship between the relics. To address this problem, we analyzed the kernel density of these regions to further investigate the spatial distribution of various types.

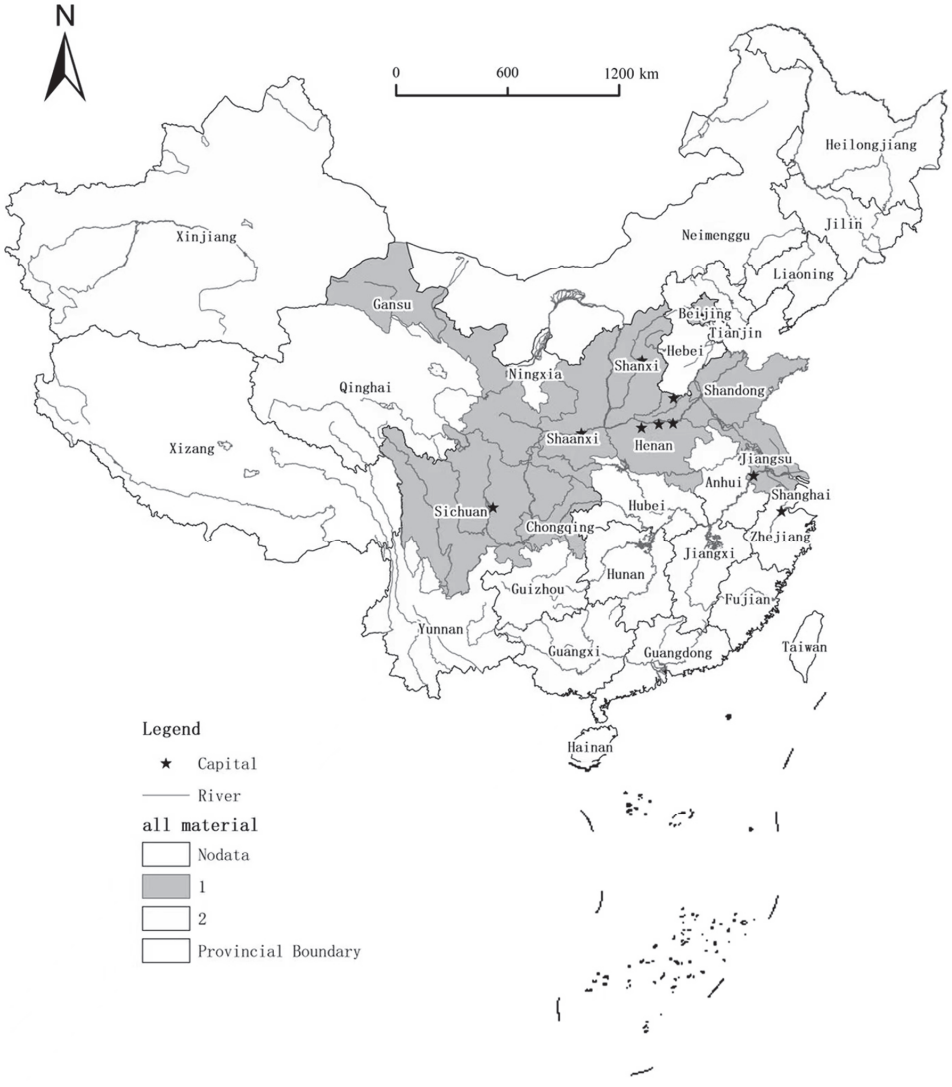


Figure 3. Distribution map of the density of types of relic sites in nine provinces.

Selection and Calculation Methods for Kernel Density Regions:

① Selection Index for Kernel Density Data

As calculated above, the number of relics in nine provinces account for 77.19% of the total (Table 4), showing a typical trend. In terms of historical periods, the Han Dynasty relic sites account for the highest proportion, reaching 86.82%, while relics from the Wei and Jin Dynasties account for the lowest proportion, totaling 68.02%. In terms of type, stone tomb murals account for 89.24% (the highest), brick tomb murals account for 80.87%, and mud tomb murals account for 65.82%. Generally speaking, the relics in the nine provinces under consideration account for more than two-thirds of the total number. Additionally, in the top nine regions in terms of overall density, there are three top provinces in each type of density. We therefore conclude that case studies of nine provinces reveal differences in the spatial and temporal distributions of the relic sites.

Table 4. Statistics of the proportion of the types of relic sites found in nine provinces.

	Mud Tomb Murals in Nine Provinces	Total Number of Mud Tomb Murals	Proportion (%)	Stone Tomb Murals in Nine Provinces	Total Number of Stone Tomb Murals	Proportion (%)	Brick Tomb Murals in Nine Provinces	Total Number of Brick Tomb Murals	Proportion (%)	Number of Tomb Murals in Nine Provinces	Total Number of Tomb Murals	Proportion (%)
Han Dynasty	39	63	61.90	291	315	92.38	85	100	85.00	415	478	86.82
Wei, Jin, Southern, and Northern Dynasties	59	98	60.20	19	20	95.00	56	79	70.89	134	197	68.02
Sui, Tang, and Five Dynasties	102	124	82.26	24	28	85.71	15	27	55.56	141	179	78.77
Song, Liao, Jin, and Western Xia Dynasties	164	276	59.43	67	83	81.72	146	166	87.95	377	525	71.80
Yuan Dynasty	37	48	77.08	6	9	66.67	9	11	81.82	52	68	76.47
Ming and Qing Dynasties	13	20	65.00	16	19	84.21	6	9	66.67	35	48	72.92
In Total	414	629	65.82	423	474	89.24	317	392	80.87	1154	1495	77.19

② Method for Calculating the Kernel Density

The kernel density analysis tool was used to calculate the density of elements in their surrounding neighborhoods. The tool can calculate the density of both point features and line features.

The calculation method for point features is as follows. Kernel density analysis is used to calculate the density of point features around each output grid pixel. By default, the units are selected according to the linear units defined by the projection of the input point feature data, or otherwise specified in the output coordinate system environment settings. If the area unit is selected, the calculated pixel density will be multiplied by the corresponding factor and then written to the output grid.

The kernel density can calculate the sample's point density and determine the element distribution's concentration area. The formula for calculating kernel density is

$$K = \frac{1}{nh^2\pi}\sum_{i=1}^{n} k\left[\left(1 - \frac{(x-x_i)^2 + (y-y_i)^2}{h^2}\right)\right]^2$$

In particular, K stands for the kernel function, $(x-x_i)^2 + (y-y_i)^2$ stands for the square of the distance between the point $(x-x_i)$ and the point $(y-y_i)$, n stands for the number of samples, and h stands for the bandwidth. Given the geographical characteristics of relic sites, this paper sets the bandwidth as the default bandwidth.

Taking nine provinces as targeted regions, we separately screened their point data among national data using a comparative approach. We used ArcGIS, a kernel density analysis tool, to analyze the kernel density. For the regional statistical analysis, the regional statistical analysis tool in ArcGIS was used to combine kernel density values with the panel data of nine provinces and calculate the average kernel density value of each province. With regard to the data classification of nine provinces, the data classification method of the natural point of discontinuity was used to divide the data into high-density, medium-density, and low-density categories, and the visual distribution is marked with colors ranging from dark to light.

③ Analysis of the Kernel Density Distribution Map

Regarding the kernel density of the overall type distribution in nine provinces, there were three main characteristics. First, Henan and Shanxi constitute the regions with the highest kernel densities (Figure 4a), and the surrounding areas are in the regions with medium densities. This substantiated the growing influence of the entire region that centers on Henan and Shanxi. Second, Henan has the highest kernel density for all four types, indicating that Henan is representative of tomb mural relic sites as a whole. Third, Henan and Shanxi boast high-density regions for the overall type, which overlap with the regions shaded with high densities of mud-type (Figure 4b) and brick-type (Figure 4c) relics. Sha'anxi (Figure 4b) is a region with high-density mud-type relics, but has medium density (Figure 4a) in the overall distribution, suggesting that mud distribution is closely related to widespread distribution.

Based on separate investigations of the three types of high-density regions, except for Sha'anxi and Shanxi, three regional characteristics can be identified. First, for mud materials (Figure 4b), the high-density regions include Henan, Shanxi, Sha'anxi, and Beijing. Second, for brick materials (Figure 4c), the high-density regions include Henan, Shanxi, and Gansu. Third, for stone materials (Figure 4d), the high-density regions include Henan (the highest) and Sichuan and Chongqing (southwestern China), exclusive of Shanxi.

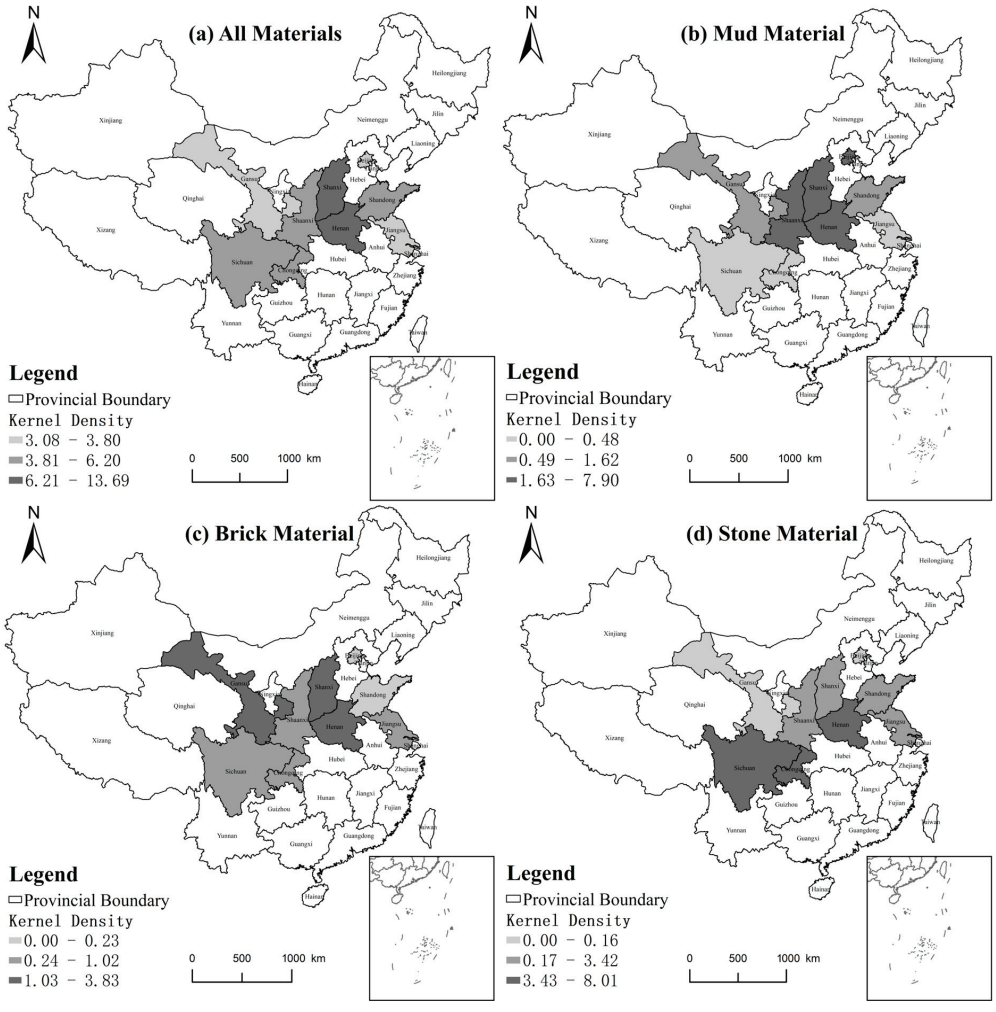


Figure 4. Overall kernel density distribution map of the types of relic sites in nine provinces.

4. Analysis of the Kernel Densities of Various Types of Major Relic Sites

From a diachronic perspective, we carried out an analysis of the kernel densities of the various types of major relic sites.

The GIS tool allows for the visualization of relics from Chinese tomb murals and alters our understanding of these murals. Based on our overall understanding of the relics, we generated a distribution map of the various types in order to interpret the diversity of the material distribution. Focusing on major relic sites, we attempted to identify the consistencies and differences in the distribution of relic types in the development of Chinese tomb murals. Kim Knott states that "social relations exist in and through space, and 'the spatial is socially constituted'. Religion, then, which is inherently social, must also exist and express itself in and through space, and must play its part in the constitution of spaces (Knott 2014)". Therefore, we generated kernel density maps for six historical periods and examined the spatial distribution of relics in order to offer synchronic and diachronic assessments of the influence of different types. According to the ranking of density values, we defined the nine provinces with above-average density values as major

relic sites and analyzed the kernel density of the types of relic sites in these nine provinces in different periods.

4.1. Kernel Density Analysis of the Types of Han Dynasty Relic Sites in Nine Provinces (Figure 5)

As the information in Figure 5 suggests, the type distribution of the Han Dynasty relic sites shows two characteristics. Firstly, Shandong, Henan, and Sichuan have the highest distribution densities of the overall type (Figure 5a). Compared with the maps of various types in the same period, the stone material (Figure 4d) accords with this type, meaning that stone tomb murals prevailed in the Han Dynasty. Secondly, the three types of high-density regions (Figure 5a–c) all center on Henan, which shows that Henan represented the mainstream of tomb murals in the Han Dynasty and that the three types coexisted in an inclusive way.

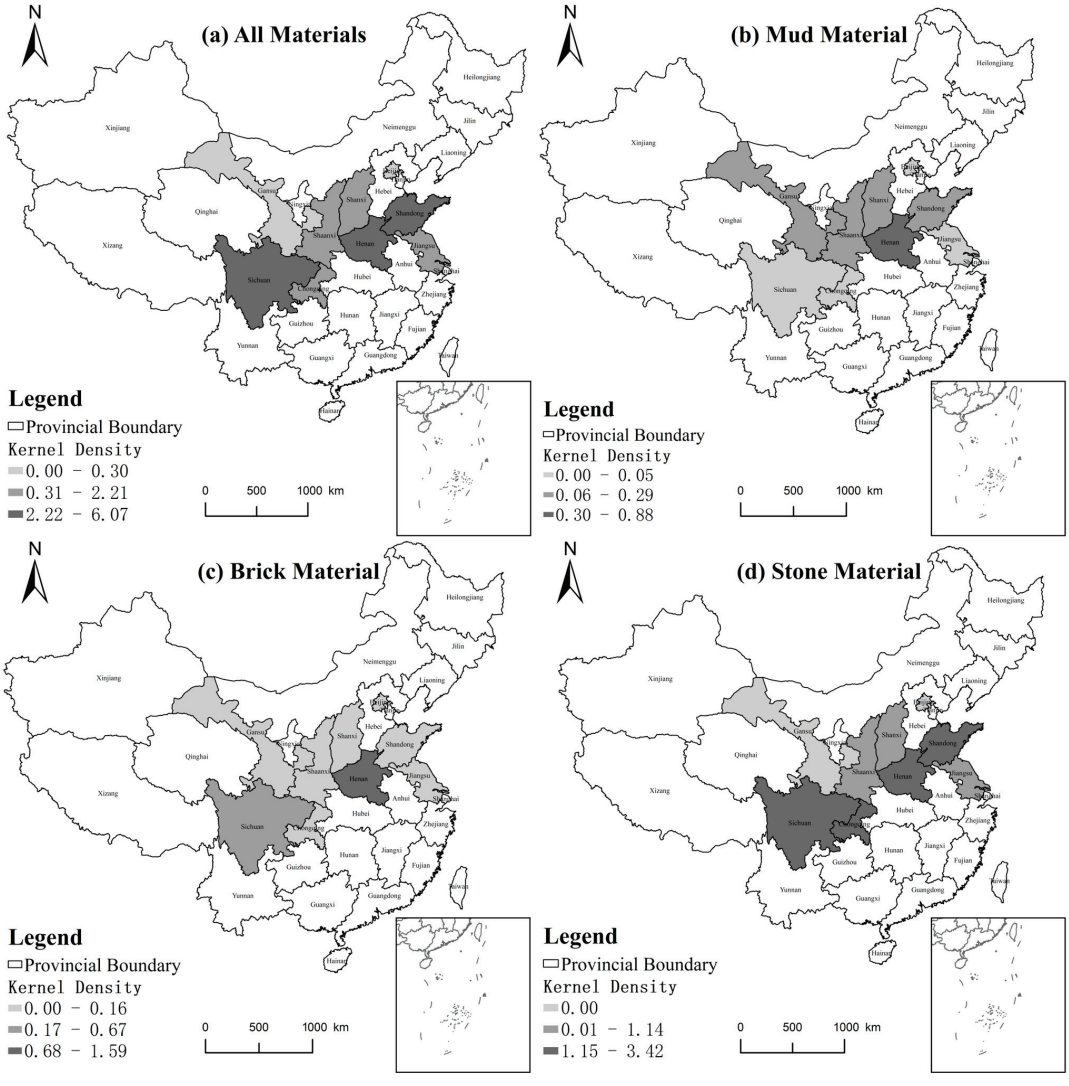


Figure 5. Kernel density distribution map of the types of Han Dynasty relic sites.

On the relationship between the four secondary-level distribution maps, we noted some differences after ranking the kernel density of the three types. First, Henan is the only high-density region for brick density (Figure 5c), in contrast to the low-density regions around it, indicating the limited influence of brick-type tombs in the Han Dynasty. Second, in terms of the distribution of mud materials (Figure 5b), although Henan is the only high-density region, the surrounding areas are all medium-density regions, indicating the spatial influence of mud-material tombs. Third, in terms of high-density regions, stone differs from mud and brick. High-density regions include Henan, Shandong, Sichuan, and Chongqing. Notably, Shandong and Sichuan both belong to the category of high-density regions for all of the types (Figure 4a), which demonstrates their widespread influence.

We also compared the correlations of the secondary-level distribution map. First, in terms of regional contributions, regions with various high-density types in the Han Dynasty include Henan, which affirms that Henan played a core role in the development of the Han Dynasty tomb murals. Second, the density of stone materials in the Han Dynasty basically tallies with the high-density region of the overall stone material (Figure 4d). This shows that on the one hand, stone material as a type emerged during the Han Dynasty; on the other hand, Shandong does not belong to the overall high-density stone material regions (Figure 4d), implying that Shandong developed distinctive characteristics during the Han Dynasty.

4.2. Analysis of the Kernel Density of the Types of Relic Sites in the Wei, Jin, Southern, and Northern Dynasties in Nine Provinces

As Figure 6 suggests, the type density of nine provinces in the Wei, Jin, Southern, and Northern Dynasties has two characteristics. First, for the main types, the regions with the highest kernel densities are Jiangsu, Shanxi, and Gansu (Figure 6a). Compared with the maps of various types in the same period (Figure 6b–d), the brick material type (Figure 6c) best matches the overall type, indicating that brick material had the greatest influence in the Wei and Jin Dynasties. Secondly, in terms of regional influence, Shanxi is a region with high-density distribution in the map of overall types in this period (Figure 6a). Shanxi is a low-density region in the distribution of brick material (Figure 6c), yet a high-density region in the distribution of mud and stone materials (Figure 6b,d). Taking the overall kernel density map of the nine provinces (Figure 4b,d) into account, these two types belong to high-density regions. Evidently, since the Wei and Jin Dynasties, mud- and stone-type relics in Shanxi have exerted an important influence.

Regarding brick material density, Henan transformed from a high-density region to a low-density region during the Han Dynasty (Figure 5c), forming a sharp contrast. Moreover, Jiangsu became a high-density region, but constituted a medium-density region in the distribution map of the overall type in nine provinces (Figure 4c). This indicates that this type represents the mainstream style in the Wei and Jin Dynasties. Additionally, in comparing the overall type map for brick material (Figure 4c), we demonstrate for the first time that Gansu showed an upward trend in brick material relics in the Wei and Jin Dynasties.

We also compared the correlations of the secondary-level distribution map. The high-density regions shifted from Shandong, Henan, and Sichuan (Figure 5a) to Jiangsu, Shanxi, and Gansu (Figure 6a) between the Wei, Jin, Southern, and Northern Dynasties and the Han Dynasty. Moreover, in the high-density distribution of various types, Henan is not the center for mud and brick materials as it was during the Han Dynasty (Figure 5b,c). The distribution region of high-density stone material diminishes remarkably, from four (Shandong, Henan, Sichuan, and Chongqing) to two (Henan and Shanxi).

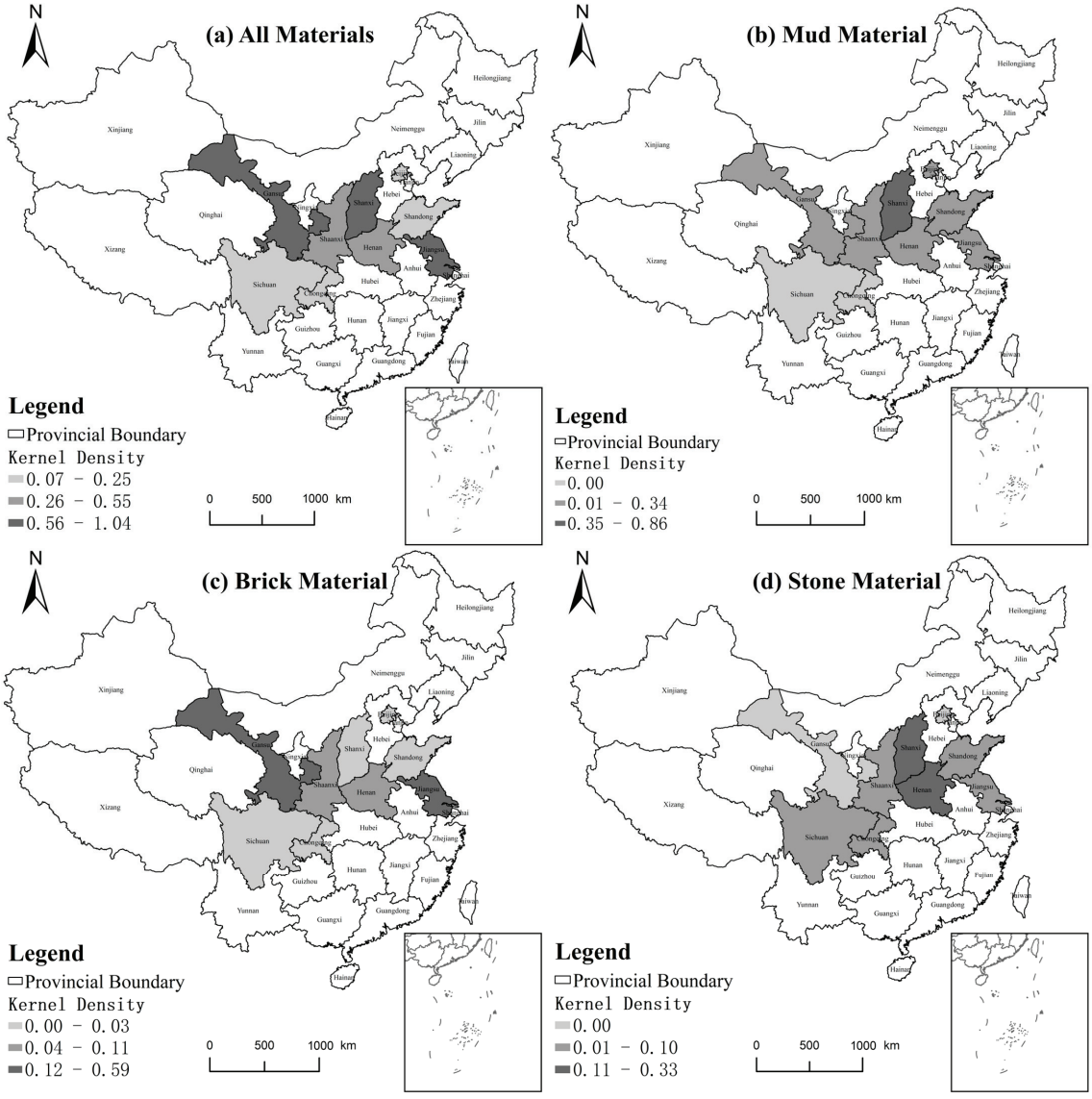


Figure 6. Distribution map of the kernel density of types of relics sites in the Wei, Jin, Southern, and Northern Dynasties.

4.3. Analysis of the Kernel Density of the Types of Relic Sites in the Sui, Tang, and Five Dynasties in Nine Provinces

As Figure 7 suggests, in the overall type of the Sui, Tang, and Five Dynasties (Figure 7a), the high-density region includes only Sha'anxi, which signals its significant difference from the regions in the Han, Wei, Jin, Southern, and Northern Dynasties. Secondly, with inconsistent density values, the distribution areas of mud material in high-, medium- and low-density regions (Figure 7b) coincide with the overall type (Figure 7a), indicating that mud relics prevailed in this period.

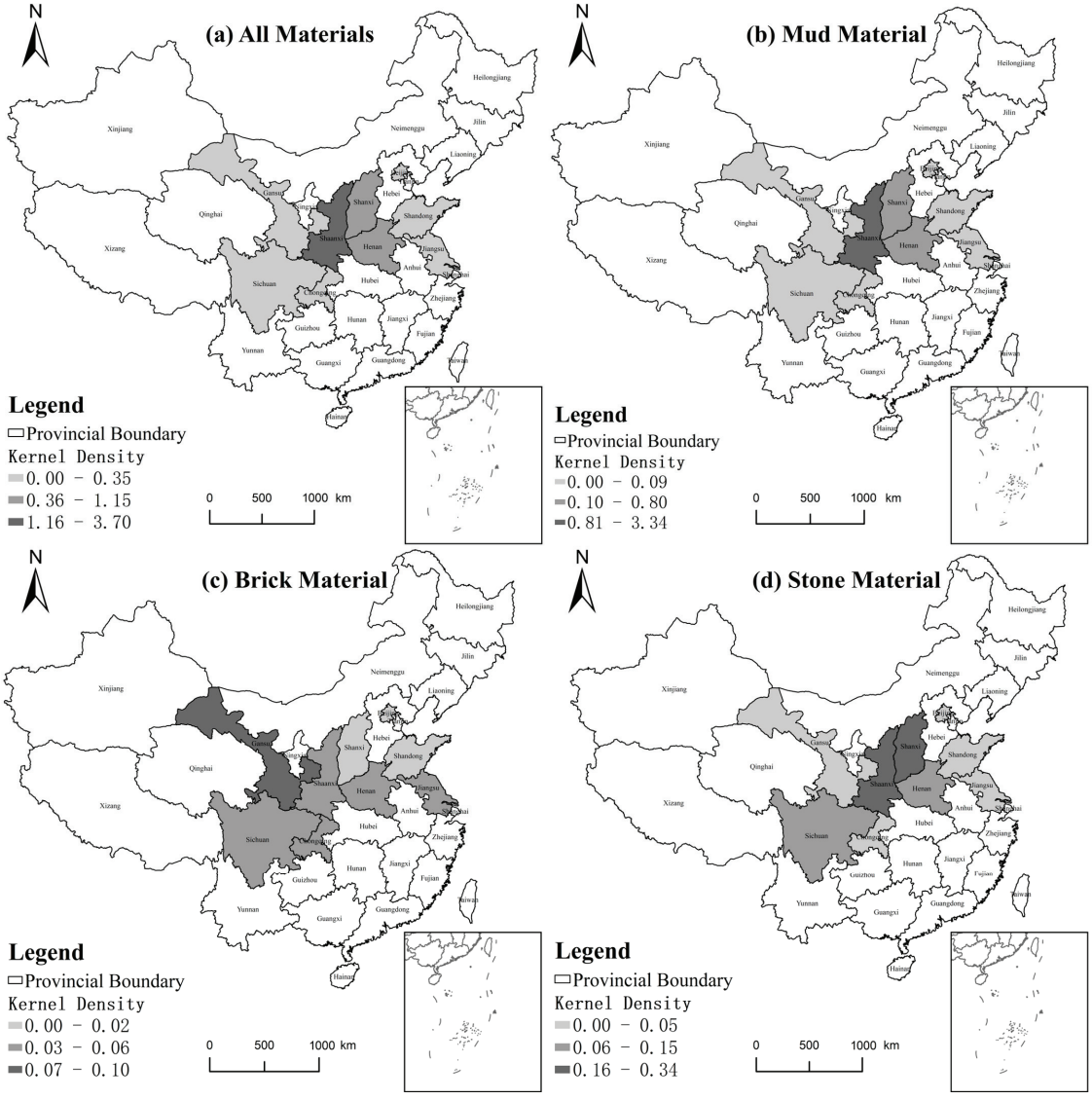


Figure 7. Distribution map of the kernel density of the types of relic sites in the Sui, Tang, and Five Dynasties.

This paper also compares the correlations of the secondary-level distribution map, making the following findings. First, in terms of mud materials, Sha'anxi becomes a high-density region for the first time and belongs to a high-density region in terms of the overall mud-material type in the nine provinces (Figure 4b), which signifies that Sha'anxi was highly influential in the Sui, Tang, and Five Dynasties. Second, early-stage accumulation plays an important role. For example, as a high-density brick material region (Figure 7c), Gansu remains consistent with the Wei and Jin Dynasties (Figure 6c). As a high-density stone material region (Figure 7d), Shanxi also remains consistent with the Wei and Jin Dynasties (Figure 6d). Third, in this period, Sha'anxi became a high-density stone-material region for the first time, which indicates that stone material was increasingly prevalent during this time (Figure 7b).

4.4. Analysis of the Kernel Density of the Types of Relic Sites in the Song, Liao, Jin, and Western Xia Dynasties in Nine Provinces

As Figure 8 suggests, Shanxi and Henan belong to the group of regions with the highest density (Figure 8a), as shown in the distribution maps for mud (Figure 8b) and brick materials (Figure 8c). This illustrates that these two types were dominant in this period. The density value in this period is higher than that in other periods. The high-density value reaches 0.90–4.28, the medium-density value reaches 0.31–0.89, and the low-density value reaches 0.00–0.30, with a high coverage rate of the relics in this period. Moreover, the high-density regions in this period differ from those in the Sui, Tang, and Five Dynasties (Figure 7), shifting from Sha'anxi to Shanxi and Henan.

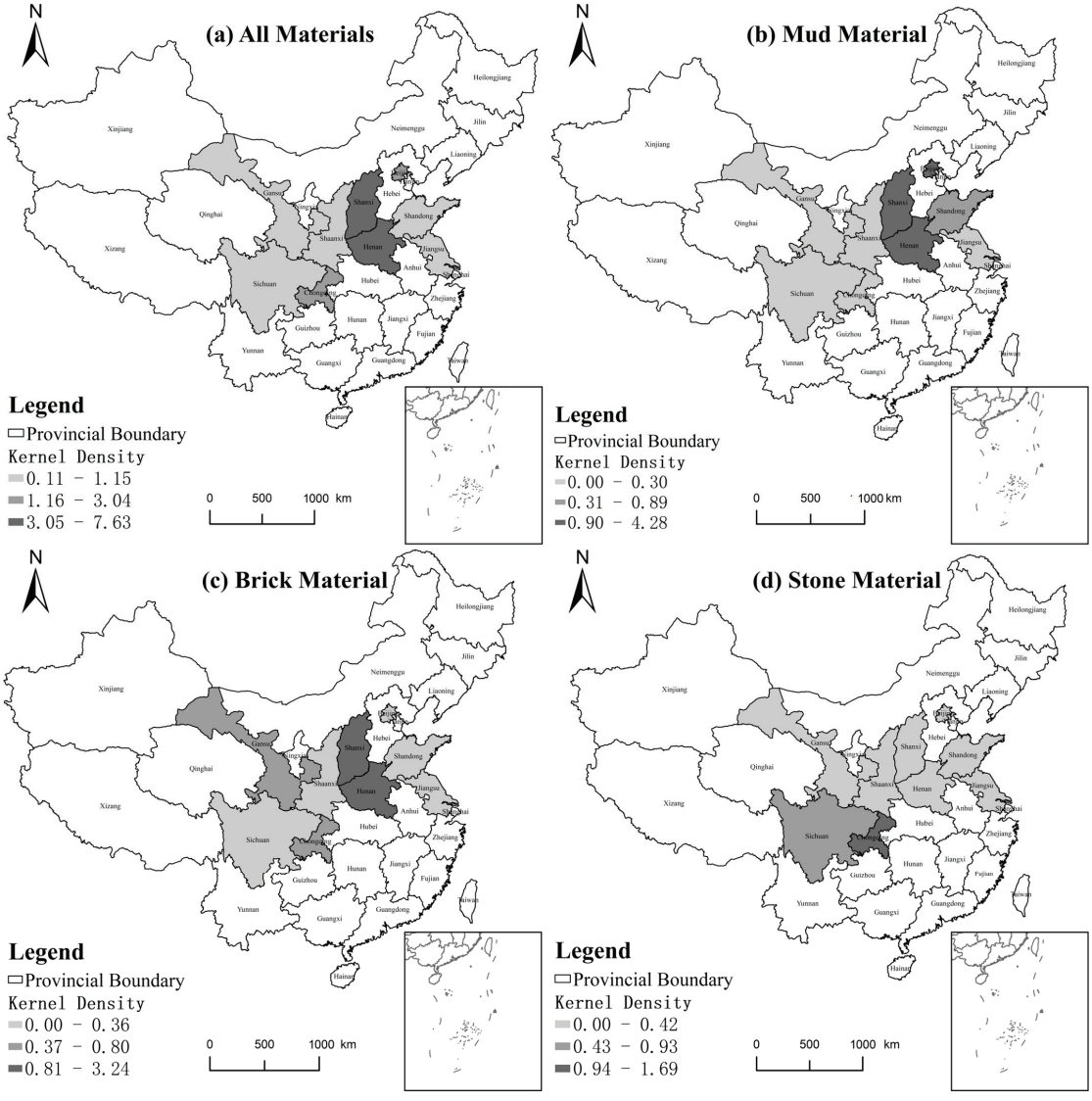


Figure 8. Distribution map of the kernel density of the types of relic sites in the Song, Liao, Jin, and Western Xia Dynasties.

By comparing the correlations of the secondary-level distribution map, we found that the major high-density mud material regions include Shanxi and Henan (ranking in the top two) and Beijing (Figure 8b); this is the only time that Beijing was a region with a high density of relics. For stone-type relics, Sichuan and Chongqing constitute high-density regions (Figure 5d), which means that they had widespread influence in the Song, Liao, and Jin Dynasties. For high-density brick material, the landscape undergoes a radical change between the Wei, Jin, Southern, and Northern Dynasties (Figure 6c) and the Sui, Tang, and Five Dynasties (Figure 7c) and starts to encompass Henan and Shanxi (Figure 8c), as shown in the overall map of high-density regions in the nine provinces (Figure 4c); this indicates that high-density brick regions were influential in this period. Notably, Henan boasted a high-density region for brick material during the Han Dynasty (Figure 5c), while Shanxi became a high-density brick-material region for the first time.

4.5. Analysis of the Kernel Densities of the Types of Relic Sites in the Yuan Dynasty in Nine Provinces

Figure 9 suggests that in terms of the overall type of relic sites in the Yuan Dynasty (Figure 9), Shanxi constituted a high-density region for the three types, indicating that Shanxi had a pronounced influence in this period.

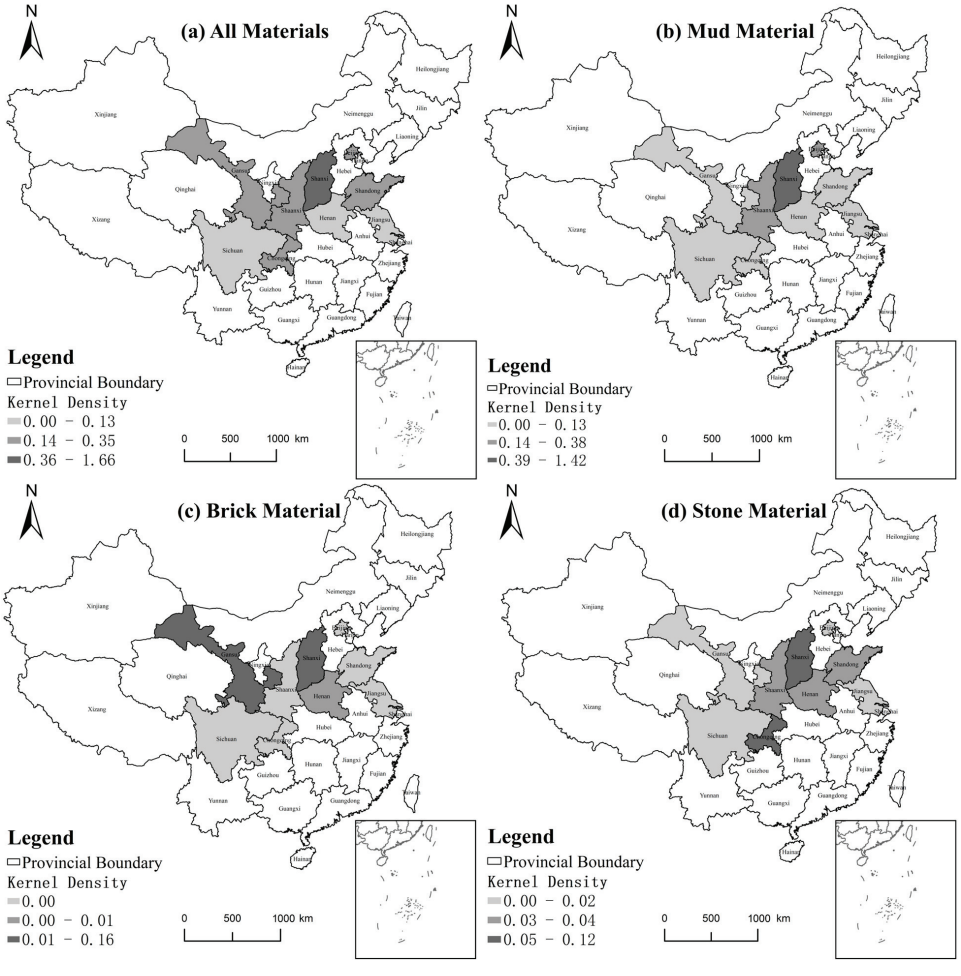


Figure 9. Distribution map of the kernel density of the types of relic sites in the Yuan Dynasty.

Additionally, a comparison of the correlations of the secondary-level distribution map indicates that the high-density mud material region (Figure 9b) entirely coincided with the high-density region (Figure 9a) for the overall type map of the same period, indicating that mud material was mainstream during this period. Moreover, brick and stone materials were distributed in other high-density regions. The former includes Gansu, as shown in the high-density brick material regions in the Wei, Jin, Southern, and Northern Dynasties (Figure 6c) and the Sui, Tang, and Five Dynasties (Figure 7c). The latter includes Chongqing, as shown in the high-density region in the Song, Liao, Jin, and Western Xia Dynasties (Figure 8c).

4.6. Analysis of the Kernel Density of the Types of Relic Sites in the Ming and Qing Dynasties in Nine Provinces

Figure 10 shows that Henan, Sichuan, and Chongqing (Figure 10a) ranked in the top three in the overall type of high-density relic sites in the Ming and Qing Dynasties (Figure 10a). Stone material has the highest contact ratio, and the relevant regions included Sichuan and Chongqing, indicating that stone material had the largest influence in the Ming and Qing Dynasties.

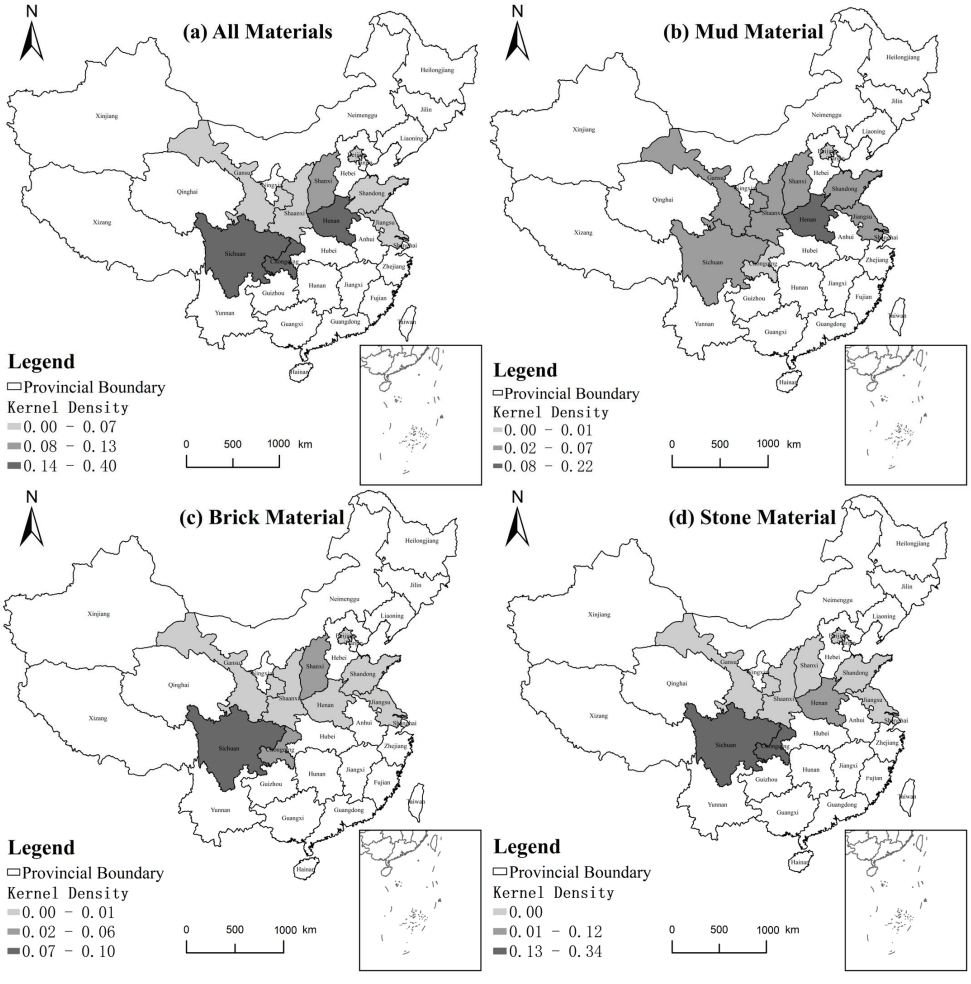


Figure 10. Distribution map of the kernel density of the types of relic sites in the Ming and Qing Dynasties.

A comparison of the correlations of the secondary-level distribution map also indicates that the high-density regions (Figure 10a) in the map of the total types of the Ming and Qing Dynasties accord with the high-density regions in the map of the total types of stone in the nine provinces (Figure 4d), demonstrating the influence of stone material in this period. Moreover, according to the distribution density of mud material, the medium-density regions center around Henan, a high-density region (Figure 10b). Additionally, for the distribution of brick, Sichuan constitutes a high-density region, as shown in the distribution of brick density in the Han Dynasty (Figure 5c). However, according to the brick distribution map of the nine provinces, Sichuan belongs to a medium-density region, with brick material having a limited influence.

5. Conclusions

Chinese tomb murals have developed over a long time period; the tombs have many types and a wide distribution. There are more than 1000 relic sites of Chinese tomb murals, and these numbers are increasing with the continuous progress of archaeological activities. This signals that such tombs constituted a significant religious phenomenon; many complex phenomena are synthesized in the distribution relationship, affecting the academic understanding of the distribution of Chinese tomb murals. The existing scholarship has achieved no satisfactory results in the spatial research into tomb murals. This paper uses the GIS tool to visualize 1495 sites of Chinese tomb murals excavated from 1949 to 2019 in order to gain more significant results for spatial research.

In methodological terms, visual distribution maps of relic sites were produced to establish an information acquisition system. In particular, four basic indexes, i.e., the distribution of relic sites, the distribution of mud relic sites, the distribution of stone relic sites, and the distribution of brick relic sites, were designed to draw the distribution map, obtain various kinds of information, and form an information model for spatial research. A total of four primary-level distribution maps and six secondary-level distribution maps were constructed.

In theoretical terms, the distribution of relics in provincial administrative regions was determined in line with the quantity distribution and density value level, and an information analysis system was established. This paper clarifies the following: (1) In terms of quantity distribution, the influence of the Yellow River basin is greater than that of the Yangtze River basin. (2) In terms of the density value, the national average density values were obtained to rank the distribution of relics in 27 provinces. Among these provinces, nine provinces with above-average values make the greatest contributions to the development of Chinese tomb murals, and Henan and Shanxi lead the list. (3) In terms of kernel density, this paper acquired different types of information on the selection of material types in different provinces, both synchronically and diachronically.

In summary, by designing a visual distribution map of Chinese tomb murals, this paper establishes a superimposed information acquisition model, accounting for the overall distribution of relics, the overall material distribution, the overall kernel density distribution, and the kernel density distribution at each stage of the tomb murals' development. In other words, this paper forges a new path for spatial research and obtains a new understanding in this regard. One limitation of this paper concerns the fact that the theoretical results obtained from the visual distribution map have not been compared with traditional academic theoretical results. Future research will comprehensively evaluate the results of this spatial research.

Author Contributions: Conceptualization, Y.S.; methodology, Y.S.; software, Y.S. and X.W.; validation, Y.S.; formal analysis, Y.S.; investigation, Y.S.; resources, X.W.; data curation, Y.S.; writing—original draft preparation, Y.S.; writing—review and editing, X.W.; visualization, Y.S.; supervision, X.W.; project administration, X.W. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: This project, which was presided over by Xiaoyang Wang, has been completed. The project comprehensively assesses the archaeological achievements of Confucian, Buddhist, and Taoist arts from 1949 to 2019; tomb murals represent Confucian art. The achievements of the project will be published by Science Press in the form of a series of books in 2023, titled *Archaeological Chronicles of Chinese Religious Arts (1949–2019) (12 Volumes)*.

Conflicts of Interest: The authors declare no conflict of interest.

Notes

[1] All maps in this paper are based on the standard map with the GIS review number (2016) no. 1595, as downloaded from the standard map service website of the National Administration of Surveying, Mapping and Geoinformation. The base map is not modified.

[2] This project, which was presided over by Xiaoyang Wang, has been completed. The project comprehensively assesses the archaeological achievements of Confucian, Buddhist, and Taoist arts from 1949 to 2019; tomb murals represent Confucian art. The achievements of the project will be published by Science Press in the form of a series of books in 2023, titled *Archaeological Chronicles of Chinese Religious Arts (1949–2019) (12 Volumes)*. The data presented in this paper originated from the volume *Overview* and have been authorized by Xiaoyang Wang, the leader of the project. All the table data have been further sorted based on the information provided by the data source.

[3] So far, tomb mural relic sites have not been found in the Chinese provincial administrative regions of Tibet, Shanghai, Tianjin, Hainan, Hong Kong, Macao, and Taiwan.

[4] On 25 October 2016, the China Ancient Capital Research Summit Forum was staged in Chengdu, in which Chengdu was officially listed in "Chinese Great Ancient Capitals". The Chinese Society for Ancient Capital Studies is a national academic organization that comprises groups and individuals from various domestic institutions of higher learning, scientific research institutions and cultural groups. Previously, the Society recognized "nine ancient capitals", i.e., Xi'an, Luoyang, Nanjing, Beijing, Kaifeng, Hangzhou, Anyang, Zhengzhou and Datong. Together with Chengdu, there are ten ancient capitals in China. For the official report of Famous Ancient Capital of China, see http://gdmc.snnu.edu.cn/info/1003/1108.htm (accessed on 19 December 2022).

References

Cantwell, Christopher D., and Kristian Petersen. 2021. *Digital Humanities and Research Methods in Religious Studies*. Berlin: De Gruyter, vol. 2, p. 122.

Editorial Department of Encyclopedia of China Press, ed. 1992. Water Conservancy. In *Encyclopedia of China*. Beijing: Encyclopedia of China Press, p. 167.

Huang, Xiaofen. 1996. The Transformation of the Han-Dynasty Tomb Form: An Analysis of the Evolution from the Vertical Cave-Style Outer Coffin Tomb to the Horizontal Cave-Style Chamber Tomb. *Archaeology and Cultural Relics* 1: 49–69.

Kilde, Jeanne Halgren. 2014. Approaching Religious Space: An Overview of Theories, Methods, and Challenges in Religious Studies. *Religion and Theology* 20: 183–201. [CrossRef]

Knott, Kim. 2005. Spatial Theory and Method for the Study of Religion. *Temenos* 41: 153–84. [CrossRef]

Knott, Kim. 2014. *The Location of Religion: A Spatial Analysis*. Abingdon-on-Thames: Routledge, p. 21.

Wang, Xiaoyang. 2018. *On the History of Chinese Tomb Murals*. Beijing: Science Press, p. 18.

Warf, Barney, and Santa Arias, eds. 2009. *The Spatial Turn: Interdisciplinary Perspectives*. Abingdon-on-Thames: Routledge, p. 171.

religions

MDPI

Article

Spatiotemporal Reconstruction of Water Deities Beliefs in the Pearl River Delta Applying Historical GIS

Yuqing Liu * and Yuanlin Wang

School of Humanities, Guangzhou University, Guangzhou 510006, China
* Correspondence: liuyqcug@gzhu.edu.cn

Abstract: The Pearl River Delta (PRD) is one of the most typical regions in China, where people commonly believe in Nanhaishen 南海神 (the South Sea God), Tianfei 天妃 (the Heavenly Concubine), Beidi 北帝 (the Northern Emperor) and other Water Deities. This paper investigates 40 local chronicles from 9 counties in the region. It has digitized, quantified, and analyzed the temple records of the Water Deities and used the Geographic Information System (GIS) to reconstruct the spatiotemporal evolution of the local beliefs. The results show the consistency and difference in the spatiotemporal evolution of the local beliefs of Water Deities. The consistency reflects that their original centers were all around the city of Canton and its west, namely Foshan 佛山 and Jiujiang 九江, which were in the jurisdiction of Nanhai County 南海縣, showing a similar tendency to move from the center to the periphery. The difference in the evolution is that they had apiece characteristics in distribution patterns and transmission paths. The blossoming, propagation, and consolidation of the beliefs were influenced by multi-factors such as defending against flood disasters, transportation and commercial development, the integration of national sacrifices and folk beliefs, and the connection of the beliefs with regional security. Overall, Water Deities' status in people's minds continued to deepen, and their supernatural powers were perceived as increasingly outstanding. It reflects people of the traditional regional society and their spiritual orientation to the material world, which was affected by institutional and non-institutional factors.

Keywords: Water Deities beliefs; spatiotemporal evolution; the Pearl River Delta; historical GIS

Citation: Liu, Yuqing, and Yuanlin Wang. 2022. Spatiotemporal Reconstruction of Water Deities Beliefs in the Pearl River Delta Applying Historical GIS. *Religions* 13: 1040. https://doi.org/10.3390/rel13111040

Academic Editor: Z. George Hong

Received: 28 September 2022
Accepted: 26 October 2022
Published: 1 November 2022

Publisher's Note: MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.

1. Introduction

The Pearl River Delta (PRD) is located at the estuary of the Pearl River and is characterized by a dense water network connecting the river and the sea (Zeng 1991), in which its social and economic development and cultural beliefs formation are highly relevant to the water environment (Zeng 1994; Situ 2001). Among estuary deltas in China, the PRD has the most representative popular religion of Water Deities represented by Nanhaishen, Tianfei, and Beidi (Figure 1).

Previous studies on popular religion are abundant (Feuchtwang 2001; Huang 2012; etc.) and have generally shown the significant role of national sacrifice, which reflected people's understanding of heaven, land, ghosts, and gods, and the positions of imperial power in different times, in constructing the Chinese belief system (Lei 2009). While the joint influence of political, economic, and cultural changes, traditional Chinese society laid a foundation for forming popular belief by building temples and establishing religious manners, which reflect the relationship between people and deities (Wang 2010; Jia 2021). At the same time, the process of reinforcing relations between peoples and beliefs provides an affluent perspective for studying historical writing, auspices, disasters, and political structures (Chen 2004; Yu 2012). The development of folk beliefs reached its peak in the Tang and Song Dynasties, and they continued to thrive and evolve during the Ming and Qing Dynasties. In this period, the relatively loose political control allowed people to enjoy more freedom in their daily life, which was an important context of the unprecedented development and spread of folk beliefs (Zhao 2002).

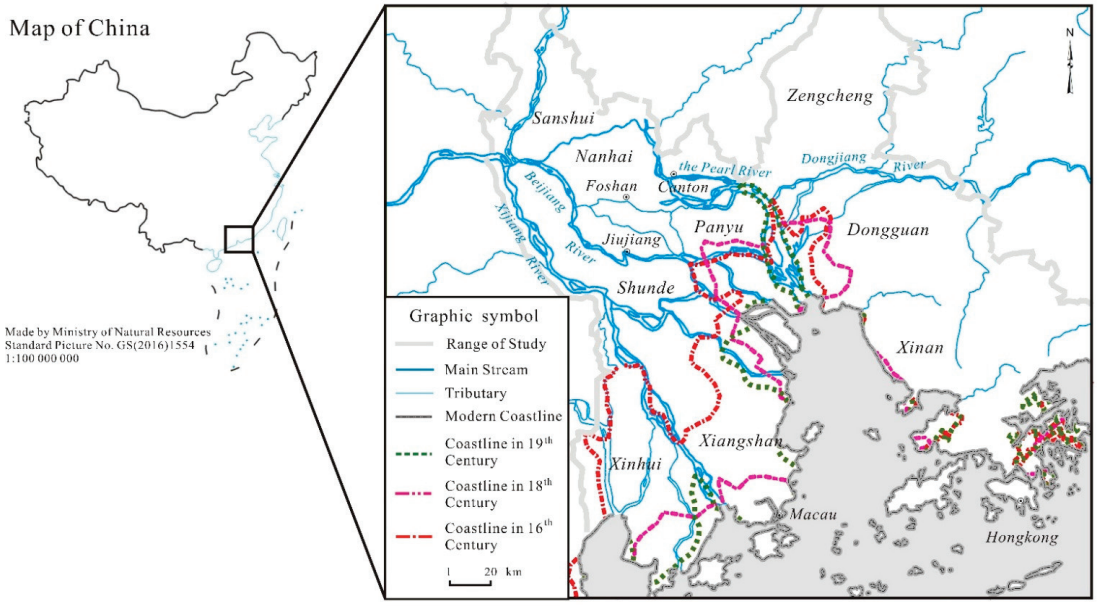


Figure 1. Schematic diagram of area division[1].

The studies about the Water Deities in the PRD have presented the development and evolution of Water Deities beliefs from different perspectives, and most of them have mainly focused on the beliefs in Nanhaishen (Wang 2002, 2006, 2021; Qiao 2015; etc.), Tianfei (Chen 1994, vol. 5, p. 113; Liao 2000; Li 2012; Tan 2013; Liu 2019; etc.) and Beidi (Liu 1994, pp. 107–25; Xiao 2016; Luo 2017; etc.), and explored the relationship between religion manners and regional society (Zhou 2009; Cai 2003; Cai 2019; etc.). These studies have revealed that since the Ming dynasty, the religious believers, regional sacrifice, and the state rituals moved toward integration and helped form a unique clan society, which was closely connected with the folk power pattern of the regional society (Zhu 2008, vol. 2, p. 45; Faure 2016). These features were clearly shown in the surrounding areas, such as Western and Eastern Guangdong (Chen 2001, vol. 1, p. 123; He 2011).

Existing investigations and discussions of regional Water Deities beliefs have mainly focused on the development of the beliefs themselves or from perspectives of sociology and folklore. Methodologically, they have generated an understanding of the development of folk beliefs through primarily literature analysis. Few quantitative studies have constructed the development process of the deities from the perspective of spatiotemporal evolution and explored the interactions between the internal driving mechanisms and the multiple factors in traditional society; these interactions made evolution possible. With the popularization of the 'digital humanities' approach and the value of interdisciplinary perspective using a quantitative method in researching history being recognized, Geography Information System (GIS) and other computational tools have been applied to deepen current investigation and understanding of traditional society (Warf and Arias 2009). Regarding the studies of religious belief, some scholars have made theoretical and methodological summaries of spatial reconstruction (Knott 2005; Carroll 2018; Cantwell and Petersen 2021; etc.), and others have made beneficial attempts at visualizing the spatiotemporal pattern of religions in China (Hong and Jin 2017; etc.). These results show that the socio-geographic venation of religions can be presented in spatial criteria (Yang 2018). In this paper, we use GIS to construct the spatiotemporal evolution of Water Deities beliefs in the PRD, exploring its driving factors and then discussing multiple factors of the development of traditional regional societies.

2. Materials and Methods

The spatiotemporal distribution of the Water Deities' temples reflects the spread and development of its beliefs. The methodology to look into the temples begins by extracting the records of the Nanhaishen, Tianfei, and Beidi temples and then comparing the records in 40 local chronicles compiled at different times, uniting with chorographic maps and gazetteer indexes at the same time. The purpose is to come up with a statistic of the length of time and location that temples existed (The local chronicles used for statistics are shown in Appendix A Table A1, and the historical maps are annotated in Note 3). It will yield the basic data for visual reconstruction in GIS.

2.1. Numbers

The titles that the people commonly used to call Water Deities at different times determined the names of the temples. Thus, by looking into the names of the temples, one can determine the types of Water Deities. For instance, temples dedicated to Nanhaishen are often titled Hongsheng 洪聖 and Guangli 廣利 (Ruan 2002, vol. 205, pp. 411–13); temples dedicated to Tianfei are often titled Mazu 媽祖/Puji 普濟/Shunji 順濟/Fuyou 福祐, and Tianhou 天后 (Rui 1966, vol. 67, p. 143); temples dedicated to Beidi are often titled Xuanwu 玄武/Zhenwu 真武 and Shangdi 上帝. In addition, some temples that worship a major god, as well as many other gods, are also within the statistical range (Liang 1967, vol. 5, p. 102).

According to the above principle, we have located records of 344 Water Deities' temples in local chronicles compiled at different times and regions. We pay particular attention to information about each temple, including their designation, the type of Water Deities worshiped within, their location in the past and present, the times of building and rebuilding, and the builder's identity. These are to be used to construct the basic GIS database for spatiotemporal reconstruction.

The statistical results show that there are 80 temples dedicated to Nanhaishen, 152 to Tianfei, and 112 to Beidi in the PRD. Nanhai County has the most significant number of Water Deities' temples, with 51, 68, and 81, respectively, of Nanhaishen, Tianfei, and Beidi. In comparison, the distribution of Water Deities in other counties is inconsistent. Although these statistics do not fully reflect the belief space of these water deities, with the existing materials, it also represents the basic appearance of their distribution in the region to a certain extent (Table 1).

Table 1. Statistics about the Water Deities' temples in the PRD.

Types	Counties	Quantity	Types	Counties	Quantity	Types	Counties	Quantity
Nanhai	Panyu	8	Tianfei	Panyu	5	Beidi	Panyu	7
	Nanhai	51		Nanhai	68		Nanhai	81
	Shunde	2		Shunde	20		Shunde	10
	Xiangshan (including Marco)	1		Xiangshan (including Marco)	12		Xiangshan (including Marco)	7
	Sanshui	1		Sanshui	2		Sanshui	2
	Xinhui	3		Xinhui	10		Xinhui	1
	Zengcheng	3		Zengcheng	7		Zengcheng	1
	Dongguan	4		Dongguan	7		Dongguan	1
	Xinan (including Hong Kong)	7		Xinan (including Hong Kong)	21		Xinan (including Hong Kong)	2
	Total: 80			Total: 152			Total: 112	

2.2. Time

Two methods can determine the period of temples that existed. According to *Panyu Xianzhi* 番禺縣誌 (Chorography of Panyu County), the tradition of compiling local chronicles is that:

> If in the situation that the historical buildings (i.e., temples, markets, docks, and schools, etc.) existed in the past but not today, or if the previous one was abandoned while a new one was built, the compilers would check the local chronicles of previous dynasties and verify the historical changes. If the buildings' condition in the county's annals and records of interviews are inconsistent with the present situation (when the chronicles were compiled), the present shall prevail. Yet, their previous condition records are also used as references for verification. 或昔有而今無, 或此廢而彼設, 稽之前志, 每與縣冊, 採訪冊不合今, 則據現在, 而前籍所載亦記於後, 以備考證云 (Li 2013, vol. 18, p. 205)

In other words, later records of the temples would be compared with the previous, including its new additions, repairs, relocations, and so on, in order to modify, supplement and explain the content of the new chronicles. By comparing the records, we could determine the approximate length of time of a temple's existence. One example is the Shangdi 上帝 temple located at Funanmen 阜南門 of Shunde 順德. Both local chronicles of Kangxi 康熙 and Qianlong 乾隆 periods recorded that 'villagers built it (the temple) in the 12th year of the Wanli reign of the Ming dynasty 明萬曆十二年邑民建' (Huang 2013, vol. 2, p. 93; Chen 2009, vol. 6, p. 345), while chronicles in the Republican era 民國 supplemented that 'it (the temple) was rebuilt in the year of Gengzi (1720) during Kangxi reign, the year of Dingyou (1777) during the Qianlong reign, the year of Bingwu (1846) during the Daoguang reign and the year of Xinhai (1911) during the Xuantong reign 國朝康熙庚子, 乾隆丁酉, 道光丙午, 宣統辛亥重修' (Zhou 2009, vol. 3, pp. 64–65). From the records, we could determine that the temple existed approximately from the year of Wanli in the late-Ming period to the Republican eras.

If the local chronicles of the past dynasties mention a temple's condition but not the exact time when the temple was first built or rebuilt, the duration of the temple's existence could still be determined by the time when the chronicles were compiled. One example is the Beidi temple located outside Taipingmen 太平門. The condition of the temple could only be found in the local chronicles of Qianlong and Daoguang reigns, and there are no relevant records can be found in other times (Deng 2015, vol. 12, p. 263; Wei 2009, vol. 13, p. 270); namely, it can be inferred that the temple might be established no later than Qianlong reign and was abandoned during Daoguang reign.

Based on the criteria mentioned above and actual statistics of the number of the temples and their existing time lengths, the development of Water Deities' temples can be divided into four stages: before the Qing Dynasty (>1643), early Qing (1644–1722), mid-Qing (1723–1850), late Qing period, and early Republican era (1851–1920), and illustrates the changes of the development as can be seen in Figure 2.

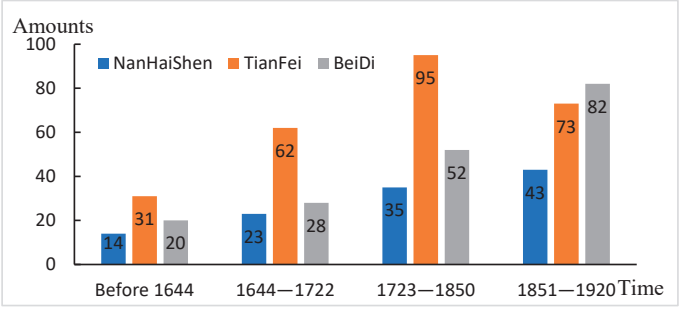


Figure 2. The counts of the Water Deities' temples in different stages.

2.3. Locations

The location names of the temples built more recently do not change much; thus, they could be recognized with their modern names. Some ancient temples, and the names of

their location, have been through many changes historically; we thus need to investigate and verify them with surviving records. For instance, the Tianfei temple in Nanhai County was recorded 'outside the Guidemen and east of the Wuyangyi 歸德門外五羊驛之東' (Rui 1966, vol. 67, p. 143). Guidemen and Wuyangyi are names of places no longer used nowadays. According to *Guangzhou Chengfang Zhi* 廣州城坊志 (The Chorography of Street and Lane in Guangzhou), Guidemen's location could be determined as at the intersection between Jiefang Road 解放路 and Dade Road 大德路 nowadays (Huang 1994, p. 755). In addition, historical maps and *the Unity of the Great Qing Dynasty* 大清一統志, recorded that Wuyangyi was located at Guandutou 官渡頭 in the southern of Panyu county (Mu 1986, vol. 341, p. 199). We can thus infer that the temple was possibly located on People's Street 人民街道 of Yuexiu District 越秀區 in Guangzhou nowadays. In this way, the location of each temple has been examined and verified, which can be used as spatial data in GIS visual reconstruction.

3. Results of GIS Visual Reconstruction

3.1. Spatiotemporal Evolution of Nanhaishen Belief

The Nanhaishen Temple is considered to be the best-preserved one among the Four Seas Temples 四海神廟 in China. It is an important historical site in the research of the Maritime Silk Road 絲綢之路. It played the role of safeguarding maritime traffic and expression of national jurisdiction (Wang 2021). Figure 3a reveals that there was not a large number of Nanhaishen temples that existed before the Qing Dynasty, with only 14 recorded sites (Figure 2), which were concentrated on riparian of the Pearl River. The most famous one is located at the estuary of Fuxu, 40 km southeast of Canton[2], which is at the bay of Huangmu beside the Polo River (Wang 2015, vol. 13, p. 492). The temple was set up in the Kaihuang (開皇) reign in the Sui (隋) Dynasty (ca. 581–600 AD) and has been through renovations and expansions, which were recorded in the chronicles of subsequent dynasties. In the Song (宋), Yuan (元), and Ming (明) Dynasties, the distribution of Nanhaishen temples was extended westward, forming an east–west distribution pattern along the estuary of the Pearl River. Until the early Qing period, the spatial pattern of the temples remained stable, but their quantities increased continuously, and their development surrounded Canton and Nanhai Counties (Figure 3b).

After the mid-Qing period, the spatial pattern of Nanhaishen temples began to change. On the one hand, the temples' spatial coverage continuously expanded along with the increase in numbers. On the other hand, the sacrificial center began to shift. At this stage, most of the new temples were built in Nanhai County, southwest of Canton, as *Panyuxian Xuzhi* 番禺縣續志 (Continuation Chorography of Panyu County) described that the temples that were distributed from Polo to outside approaching all suburban markets and villages were sumptuous (Liang 1967, vol. 5, pp. 101–2). According to statistics, there were 22 Nanhaishen temples set up during this period, including 15 in Nanhai County, and in particular, they were built primarily centering Wudoukousi 五鬥口司, Huangdingsi 黃鼎司, Jiangpusi 江浦司, and Shenansi 神安司. In addition, after Hong Kong was opened to foreign trade, more Nanhaishen temples were built (Figure 3c).

During the late Qing and early Republican eras, the new sacrificial center of Nanhaishen temples was formed. The core of the temples' distribution was further moved southwest to Jiujiang 九江 area thereafter, a subdistrict under the jurisdiction of Nanhai County. Statistically, there were 31 new temples built, and one-third were located in Jiujiang (Figure 3d). The sacrificial centers, from the early Qing Dynasty to the late Qing and early Republican eras, were shifted from alongside the trunk of the Pearl River to its subordinate areas, namely from Canton to Jiujiang. Meanwhile, up until the Daoguang reign, there were few records of the construction of Nanhaishen temples in Hong Kong, but their numbers increased rapidly after Hong Kong became an open port. This also suggests the expansion of the sacrificial circle of Nanhaishen Belief, which the previously peripherical region, such as Hong Kong, developed into a sub-center.

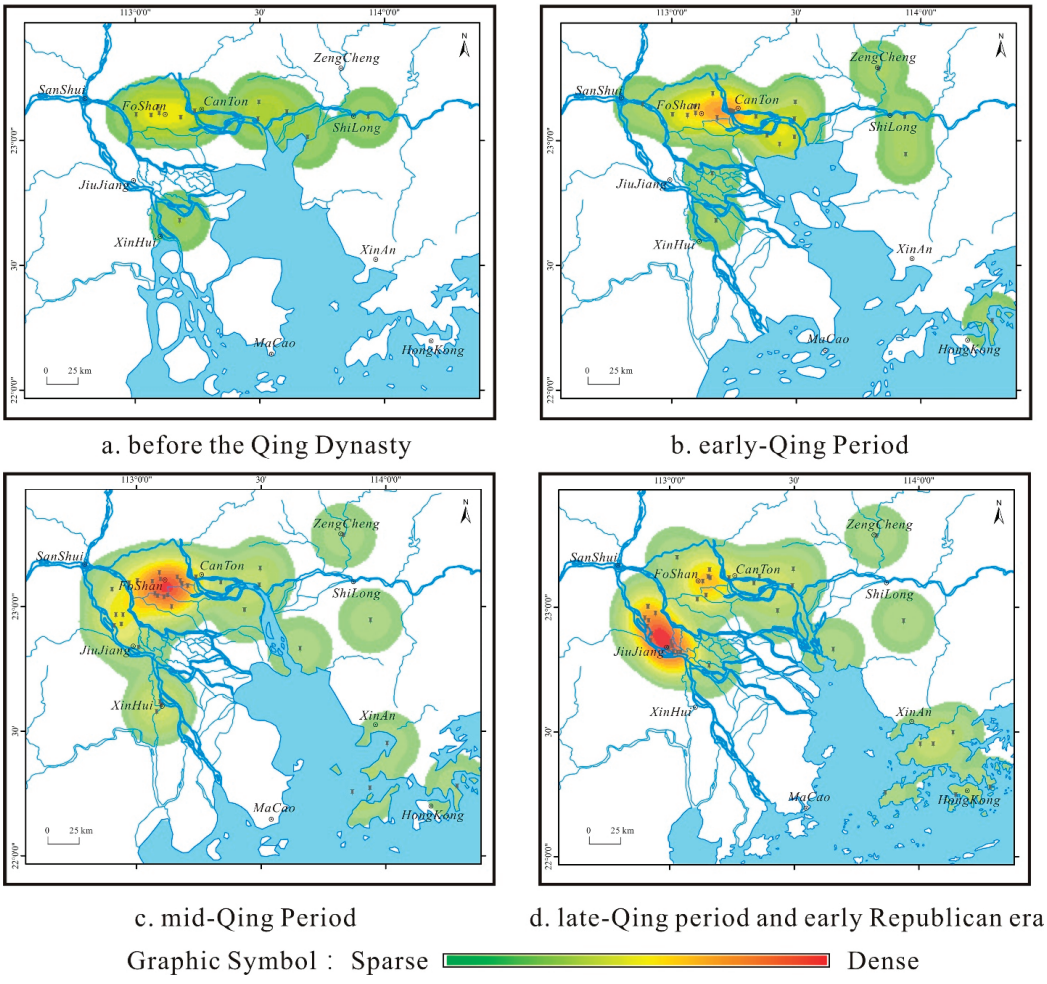


Figure 3. The process of the spatiotemporal evolution of Nanhaishen Belief[3].

3.2. Spatiotemporal Evolution of Tianfei Belief

Tianfei is the most important goddess in the folk religion of the coastal region of China (Jin 1988, vol. 2, p. 99), and Tianfei Belief is closely related to maritime navigation; as Li writes, '(the belief in) the goddess of the heavenly queen was always connected with the sea 天后之神與海相始終' (Li 2013, pp. 1274–76). Before the Qing Dynasty, while the number of Tianfei temples in the PRD was only 31 (Figure 2), they were distributed widely. From the GIS, one can see that Tianfei temples were initially established in the estuarine zone of the PRD. This area has important regional geographical importance as the gateway of Pearl River to the sea. (Figure 4a). Up until the mid-Qing period, the spatial pattern of Tianfei temples did not change significantly. However, the number of temples increased to 62 (Figure 2), and the hierarchy of regional sacrificial centers began to show. The core area of the distribution of Tianfei temples surrounded Canton. The sub-centers of the distribution began to show in the regions of Xinhui 新會, Xiangshan 香山, Dongguan, and Zengcheng 增城 (Figure 4b). Then, the customs of worshiping Tianfei further spread to other regions, resulting in changing the previous multi-center feature of distribution to integration.

In comparison, the number of Tianfei temples in Hong Kong/Macau increased more pronouncedly, forming an independent core area of the development of Tianfei Belief. Relevant investigations show that there were eight major temples in Changzhou 長洲 of Hong Kong, including four dedicated to Tianfei; this indicates the importance of Tianfei Belief among the local people (Huang 1999, vol. 2, p. 43). In the mid-Qing period, the number of Tianfei temples reached its peak (maximum 95) (Figure 2), which was closely related to the rapid economic development and the popularity of building temples in the PRD (Figure 4c). During the late Qing and the early Republican eras, the number of Tianfei temples decreased gradually. However, the sacrificial centers of Tianfei began to connect to each other on the west bank of the Pearl River estuary. As a result, the core area of Tianfei Belief was formed in the 'Canton-Foshan-Shunde' region, and the sub-core area of the belief was formed surrounding Hong Kong, Macau, and Zengcheng (Figure 4d). Overall, the distribution of Tianfei Belief had obviously association with maritime trade and activities, and its spatiotemporal evolution features are that the distribution was wide and resulted in multiple core areas.

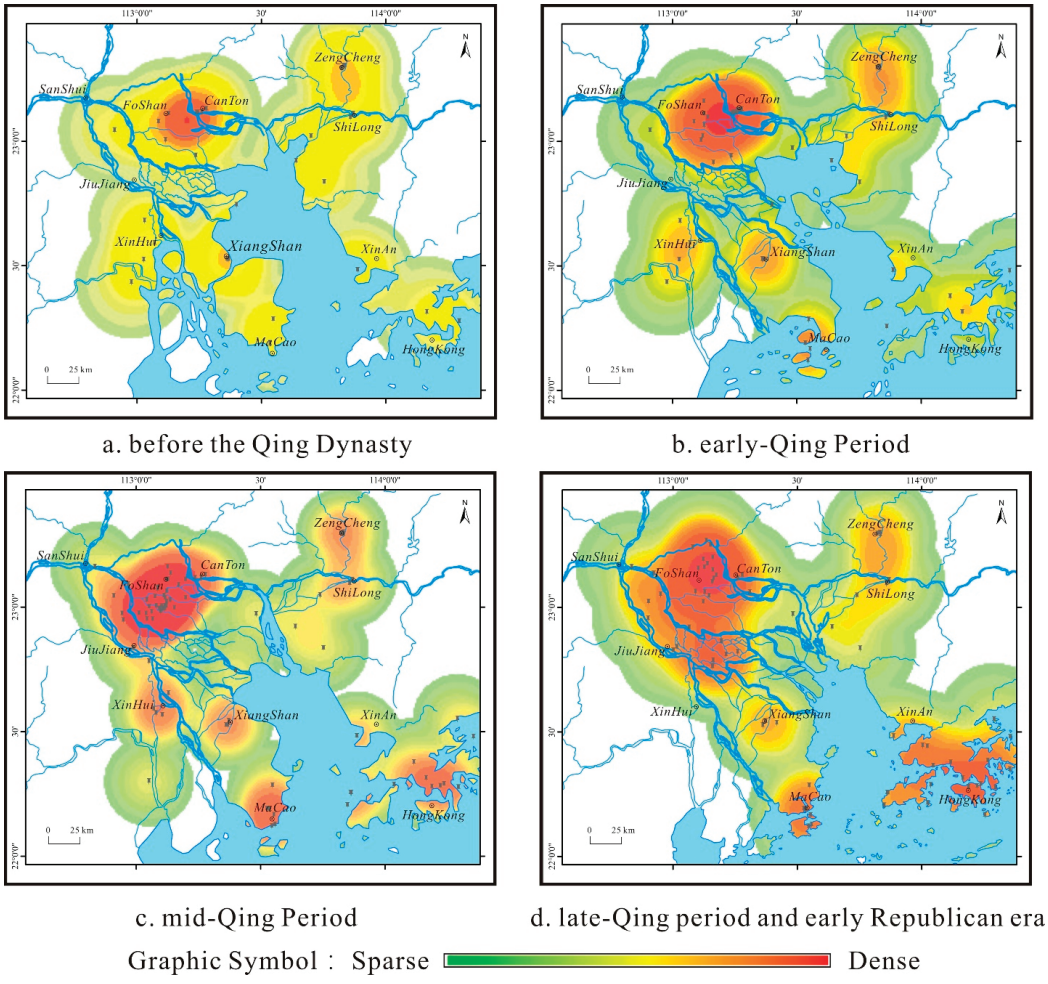


Figure 4. The process of the spatiotemporal evolution of Tianfei Belief.

3.3. Spatiotemporal Evolution of Beidi Belief

Beidi belief was introduced to Lingnan 嶺南 region from Central Plain 中原 as early as in the Han 漢 Dynasty (Zou 2000, vol. 3, p. 51). During the Ming and Qing Dynasties, because of its divine power to command the southern seas 司命南溟, Beidi became a vital deity in folk belief in the PRD, where waterways and sea routes affected a large number of populations' livelihood (Qu 1985, vol. 6, p. 208).

The distribution of Beidi temples is not as wide as the other two deities' temples by looking at the spatiotemporal evolution, which has a single core area from which the belief was expanding outwardly. Before the Qing Dynasty, no more than 20 Beidi temples were distributed mainly around Canton as well as scattered in other counties (Figure 2). Lingying Ci 靈應祠 in Foshan was the oldest Beidi temple in the region, which was built in the Northern Song Dynasty during the Yuanfeng 元豐 reign (1078–1085). Since then, more Beidi temples have been built in surrounding areas; for instance, in Xujiang 胥江, Shenansi 神安司, and Xiangshan, there were temples built during the Southern Song Dynasty in the reign of Jiading 嘉定 (Ca.1224), Xianchun 鹹淳 (Ca.1274), and Qiandao 乾道 (Ca.1169), respectively (Su 2015, vol. 14, p. 138; Deng 2015, vol. 12, p. 269; Huang 1991, vol. 8, p. 413). The GIS shows that as early as the Song dynasty, the direction of propagation of Beidi Belief in the region was centered at the Beidi Ancestor Temple of Foshan and spread southward and northward, respectively (Figure 5a). During the early Qing period, the expansion of Beidi temples gradually connected in sheets. The number of them on the west bank of the Pearl River was far more than those on the east bank, mainly distributed in Nanhai, Panyu, and Shunde counties, and Canton and Foshan were still the core areas (Figure 5b).

In the mid-Qing period, the regional clusters of Beidi Belief became more prominent, especially in Nanhai County, where the newly added temples were far more than anywhere else. According to local chronicles, Beidi temples increased by 23 in Nanhai County at that stage. Meanwhile, the core area of Beidi Belief also expanded, particularly Jiujiang was incorporated into the core sacrificial region (Figure 5c). This spatial pattern continued to develop during the late Qing and the early Republican eras, when the number of Beidi temples increased to 82. Hence, temples dedicated to Beidi became more than the two other Water Deities. In sharp contrast, Tianfei temples began to decline in the late Qing and the early Republican eras. In contrast, the Beidi temples increased rapidly and surpassed, finally forming the core area of the belief surrounding Nanhai County (Figure 5d). Overall, it is clear that the propagation of Beidi Belief was always from a single core region from which the belief spread outwardly, which surrounded the Ancestor Temple and mainly spread alongside the river. Meanwhile, few Beidi temples were distributed along the coastal zone, which reflects that Beidi Belief has a lesser connection to maritime activities than the other two Water Deities.

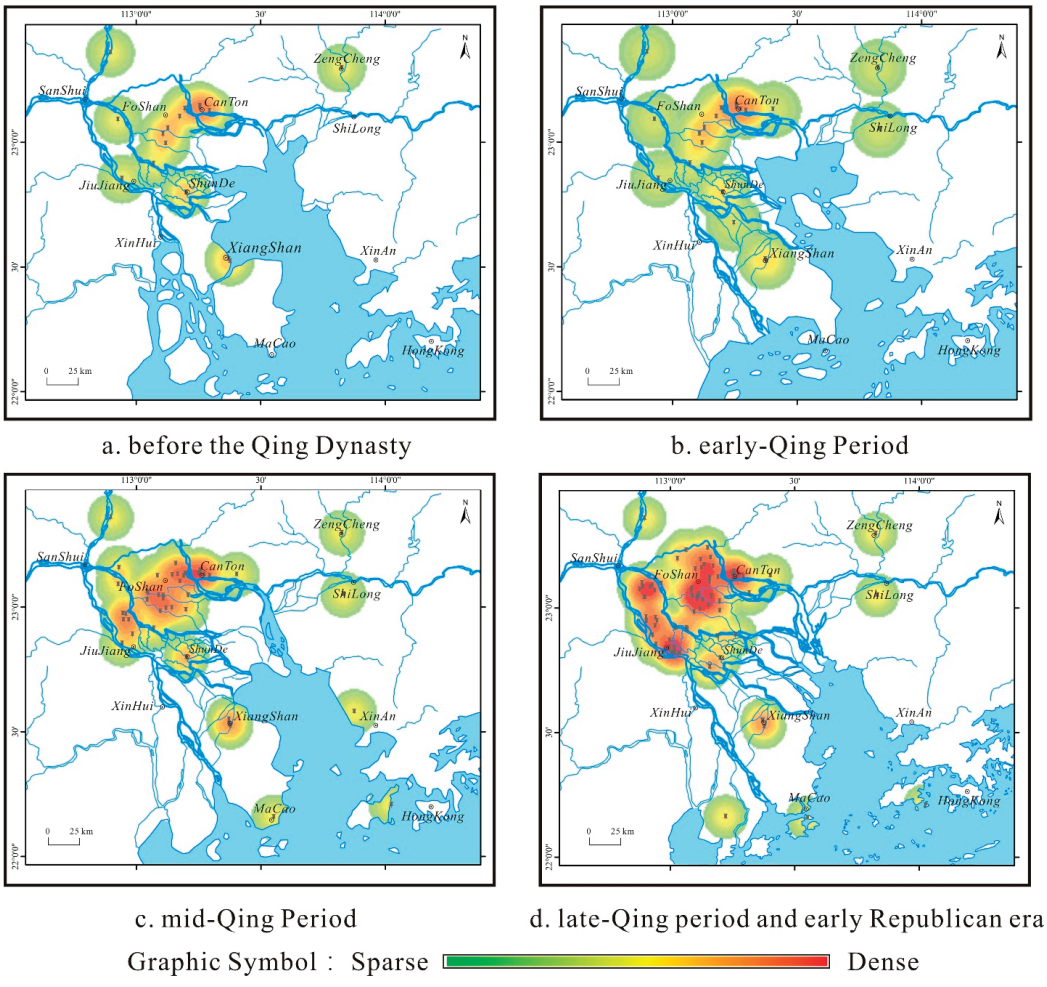


Figure 5. The process of the spatiotemporal evolution of Beidi Belief.

3.4. Comparision of Spatial Features in Water Deities Temples

To sum up, by superimposing the spatial distribution densities of Nanhaishen, Tianfei, and Beidi (Figure 6) and comparing their spatial features, sacrificial centers, and propagation paths (Table 2), it can be concluded that their spatiotemporal evolution has both consistency and difference. The consistency shows that the temples of all three Water Deities were distributed around Canton and Nanhai counties (especially around Foshan and Jiujiang), which presents a spatial feature that the temples are distributed densely in the core areas while sparse in the periphery. The difference shows that even though both Nanhaishen and Beidi beliefs developed only a single core area as the sacrificial centers, which was Canton and Nanhai country, during the early Qing period and the late Qing and early Republican eras, the sacrificial center of Nanhaishen Belief shifted from Canton to Jiujiang gradually (Figure 3b–d). In comparison, the sacrificial center of Beidi Belief did not move away from the Ancestor Temple (Figure 5). Differently, the distribution of Tianfei Belief developed multiple core regions. Apart from sharing the sacrificial center around Canton and Nanhai County with the other two Deities, it also developed the sub-centers in surrounding counties and alongside coastal areas, which shows the characteristics of the multi-level pattern of the spread of the belief (Figure 4b–d). In terms of the propagation

paths, all three were related to the water environment in the PRD. Nanhaishen and Beidi Beliefs were spread along the waterway, but the difference is that the former was spread from coast to inland, and the latter is vice verses. The distribution area of Tianfei is the most extensive, and it was distributed along the coastline in the early stage. In the later stage, it spread along the waterway from the inland to the coast as well as from coast to inland. The interaction between land and sea is obvious in the spread of Tianfei Belief. In addition, Figures 3–5 show that there is a coupling relationship between the spreading range of three water deities and the advancing path of the coastline in the PRD. Specifically, Shatin (沙田) in the region has been effectively utilized with the gradual development of the newly silted land, constituting a spatial relationship interwoven with ecological, political, economic, social, and cultural factors (Liu 2011), which provides the environmental, demographic, and social basis for the development of popular religion in the coastal areas.

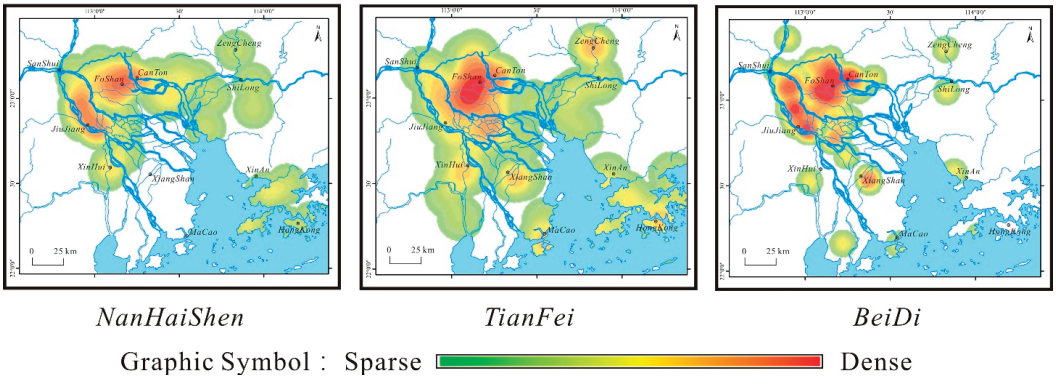


Figure 6. Comparison of spatial pattern of the Water Deities.

Table 2. Space and propagation characteristics of the Water Deities.

Water Gods	Space Distributions	Sacrificial Centers	The Path of Propagation
Nanhaishen	Single core	In the early stage, Canton was the center; the center gradually moved toward the southwest of Canton, and in the later stage, Jiujiang became the new center.	Alongside waterways; from coast to inland.
Tianfei	Multiple cores	Canton was the center, and several sub-centers were developed in surrounding counties and alongside the coast.	Sea-land interaction transmission Maritime significant
Beidi	Single core	Foshan was the center from which it expanded outwardly.	Alongside waterways; from inland to coast.

4. Discussion: Analysis of Influence Factors of the Spatiotemporal Distributions of the Three Water Deities' Temples

4.1. Defending against Flood Disasters and Protecting Farmland

The PRD is located at the estuary on the brink of the South China Sea, and the climate is affected by subtropical monsoon, characterized by high temperatures and frequent rain for most of the year. Historically, the region suffered floods disaster, threatening local people. In this context, the Water Deities Beliefs thrived as they were considered to be able to control the floods.

The coastal residents often suffered floods, and many inscriptions recorded the appearance of the Water Deities in defending against floods, so they always attributed these

disasters to the deities' anger. In order to make the deities happy, they raised funds to build temples to pray for the deities' blessing that graced their homelands from suffering (Pan 1986, pp. 172–73). Some floods with grave impacts on local society are often memorized in the temples' inscriptions, such as the stele of the Tianfei temple in the north of Canton. It records two floods that occurred in the Qing Dynasty. One was in the 29th year of the Qianlong reign (1764), causing the overflowing of the land and washing away the temple that was located near the inlet of the river. Another one records that the flood was especially severe, and the front of the temple was turned into swamps in the 4th year of the Jiaqing 嘉慶 reign (1799). The records above reveal that there were temples destroyed by inundation because of the flood, which forced them to be relocated to a higher ground that was less affected by floods (Li 2013, pp. 1287–88).

Moreover, to minimize the impact of floods on temples, the site for building temples was usually selected by adapting local conditions, which would consider the characteristics of the natural environment. For instance, the foundation of a Beidi temple in Shunde was elevated to reduce the damage from floods (Zhou 2009, vol. 3, p. 67). There are also materials that shows many Water Deities' temples were built following the evolution of the construction of water conservancies to cope with the imbalance of regional distribution in water resources. One such temple is the Hongsheng Ancient Temple 洪聖古廟 in Panyu county, as can be read in a record that:

> 'Our village terrain was high, which caused water and irrigation difficulties, resulting in poor harvest perennial; we often sighed about why farming was so tough. Through collective discussions, we decided to exploit a pond on the tax farmland (*shuitian*, 稅田) for water storage and drought … … After the completion of the project, people benefited from the water flowing continuously, which solved the problems of irrigation, guaranteeing the harvest and water access. In the years that followed, people benefited in many ways—proper wind and rain, good harvests, and peace and contentment—that was the grace of the deities! Hence, everyone was enthusiastic about expanding the temple, and the donors' list was inscribed on the back of the inscription as proof of their contributions! 嗣見闔村田丘地高水少, 灌溉甚難, 年歲每多歎收, 耕耨長嗟費力. 集議將稅田挑塘一口, 積水備旱, … … 俾圳水源源流下, 蔭村前村後一派, 田畝藉獲收成, 使不致取水艱難. 佇見時和歲稔, 五穀豐登, 民安物阜, 共樂升平, 皆藉神恩之廣被焉. 合將捐助銀數創廟置業, 列後以垂不朽云' (Unknown 2006, pp. 446–47)

The material adequately reflects the local people's logic in their thinking and their rules of practice when trying to transform the natural environment. On the one hand, they actively sought to adapt to the local conditions by constructing artificial canals to transport water to secure irrigation, which shows their objective and scientific ways of transforming nature. On the other hand, they also tended to attribute the efficiency of the water conservancy project to divine power, though it was, in fact, due to the success of the engineering project. Hence, this perception strengthened the significance of mysterious power. It reflects the reverence of natural energy in their minds. Similar acts can also be found in the construction of Sangyuan Dyke 桑園圍 in Nanhai County. The project used the revenue of tidal land formed by fluvial outwash as funds for the maintenance of the dyke to prevent floods, and part of the funds also went into the worship of water deities, which formed a social operation system that integrated water conservancy and the beliefs (Gui 1974, vol. 6, pp. 749–50). To a large extent, this pattern became the local people's psychological sustenance and behavior pattern to achieve harmony with nature.

4.2. The Factors of Transports and Commerces

In ancient times, water transport was the primary transportation method in the PRD region because of dense river networks. After the 22nd year of the Qianlong reign (1757), Canton became the only maritime port to carry out Sino-Western trades in China, and the importance of water transport in the region was further emphasized by booming maritime trades, which helped promote the spread of Water Deities Beliefs.

Water transport provided a channel for the spread of the beliefs. Maritime traffic in the South China Sea began in the Western Han Dynasty and flourished during the Tang and Song Dynasties. At the time, the maritime traffic started from Canton and reached as far as East Africa. Then, in the Ming and Qing Dynasties, maritime traffic arrived as far as Europe and America. The Nanhaishen temple in Panyu is located in the western part of the Pearl River estuary; here, the bay offers deep water anchorage and has been a famous trade port in the East since the Tang and Song Dynasties (Huang 2014, pp. 209–12). The critical channel of traditional Canton trade was taking the axis at the Pearl River estuary, entering the Huangpu 黃埔 port via Humen 虎門, and traveling west along the mainstream of the Pearl River to Canton, then arriving at various states and counties along the tributary (Van Dyke 2005). By looking at the spatial distribution of the three Water Deities' temples in the PRD in the Qing Dynasty, one can easily see that they were primarily distributed along rivers, especially flourishing nearby commercial centers by rivers. For instance, the geography of Humen is that two mountains face each other, so the tides ebb and flow regularly, bringing about countless merchants and ships from different countries to pay tributes and exchange here night and day (Ruan 2002, vol. 146, pp. 253–54). Because of the importance of water transport in the PRD, one could easily understand why the spatial distribution of the Water Deities' temples was clustered on the coast. As *Dongguan Xianzhi* 東莞縣誌 (Chorography of Dongguan County) recorded, there were no coastal counties, and towns had not yet built temples dedicated to Water Deities (Guo 2009, vol. 9, pp. 524–25). The space of the beliefs was extended as the trade became prosperous and expanded, while the merchants and their ships were regarded benefited from the power of the deities; thus, a mutually beneficial relationship was established (Wan and Wu 2014, p. 61).

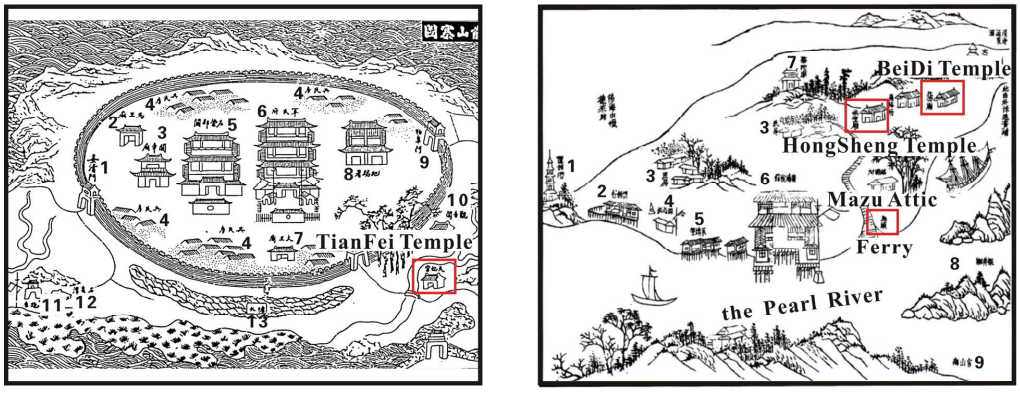
Canton, Foshan and their surroundings were the commercial centers of the PRD in the Qing Dynasty. This area was known for 'its pure and honest custom, studious scholars and academic atmosphere, hardworking farmers, skillful and sophisticated craftsmen in smelting, and merchants and vendors from all corners of the 'world' kept coming and gathering here to exchange 習俗淳厚, 士修學業, 農勤耕稼, 工擅爐冶之巧, 四遠商販恒輻輳焉' (Deng 2015, vol. 12, pp. 271–72). One historical material allows us to glimpse the commercial activities near the Ancestor Temple of Foshan, which might be seen as evidence of the close connection between regional commercial development and the booming of Beidi belief.

'Foshan was easy to reach as countryside roads in all directions were linked to there, and the upstream of Pearl River was on Foshan's north, which was the terminus for mostly merchants from all corners. The number of the ships was countless; they were as many as ants and fishes docked along the river banks or paddled forward in the middle of the river, which was more than 80 feet wide. The extent of prosperity here was unmatched elsewhere, and the noise of rowing oars and vendors' shutting spread outward as far as 4.5 *li* (1 *li* ≈ 500 m). Endless houses dotted the river banks alongside the river to the upstream, and the roads and paths were densely laid out horizontal and vertical. There were possibly thousands of houses or maybe more. A wide range of commodities piled up like mountains was displayed in the houses. No precious goods cannot be found here. The traffic was extremely heavy and was overwhelmed by the sea of people. There were possibly more than 100 thousand residents living here; though the area was packed with people, prosperous commercial activities were carried out without any issues. In the southwest of the town where was perceived as having the best geomancy, a Beidi temple was built, and people called it Lingying Temple 連鄉接畛, 沃衍四達, 漪鬱之所經於其北, 四方商賈之至粵者, 率以是為歸. 河面廣逾十尋, 而舸舶之停泊者, 鱗砌而蟻附. 中流行舟之道至不盈數武. 檝楫交擊, 爭沸喧騰, 聲越四, 五里, 有為郡會之所不及者. 沿岸而上, 屋宇森覆, 彌望莫極. 其中若縱若橫, 為衢為衍, 幾以千數. 閱層列, 百貨山積, 凡希覯之物, 會城所未備者, 無不取給於此. 往來驛絡, 駢踵摩肩, 廛肆居民, 楹逾十萬, 雖曲遂之狀無以過也. 其逼西一隅, 為地脈所由鐘. 有祠而顏曰: 靈應' (Lang 1987, pp. 22–23).

The above material depicts the prosperity of commerce and water transport in Foshan of Nanhai County in the early Qing Dynasty, where one could find the diversity of commodities and the density of residential houses. The economic development was advanced, and the population was high in Foshan, also known as the gathering place of merchants and ships (Wu 2015, vol. 12, pp. 414–15). The Water Deities' temples were densely distributed in the region, regardless of Nanhaishen, Tianfei, or Beidi, according to GIS visualization results (Figure 6).

Indeed, convenient transportation promoted prosperous trade and brought more people and capital. It provided an essential impetus for propagating the Water Deities Beliefs and contributed to more temples. Many records confirm this point. One records shows that just outside a Tianfei temple in Nanhai County, a ferry was built close to an ancient pine tree. (Zheng 1967, vol. 5, p. 120). Another record tells the Tianhou Gong 天后宫 in Panyu that many rivers converge in front of the temple and then flow into the sea (Liang 1967, vol. 5, p. 102). As *Shunde Xianzhi* 順德縣誌 (Chorography of Shunde County) recorded, during the Kangxin reign, there were 11 temples of Tianfei, including eight were built alongside the rivers in county Shunde (Huang 2013, vol. 2, p. 93).

In addition, maps in the Qing Dynasty also indicated that the Water Deities' temples were built mainly nearby the river. Here, we offer two examples (Figure 7). The map on the left illustrates Qianshan Zai 前山寨, a fortress town located at the intersection of Xianshang and Macau. One could find that a Tianfei temple was located on the edge of a river outside the southeast corner of the town (Yin 1968, vol. 1, pp. 4–5). The map on the right shows Huangpu Port 黃埔港 on the Pearl River. One could see that the Hongsheng Temple, Beidi Temple and Mazu Attic were built adjoint facing the river and close to a dock (Liang 2002, vol. 5, p. 67). The maps are generally consistent with the description 'looking far into the distance, the waves endless 俯瞰溟渤，波濤萬里' in the written records (Ren 2009, vol. 19, pp. 450–51).



a. Qianshan Zhai (前山寨)　　b. Huangpu Port (黃埔港)

a：1. Yanqing Gate (晏清門)；2. Mawang Temple (馬王廟); 3. Guandi Temple (關帝廟);
4. Military and Civilian House (軍民房); 5. Left Camp of Court (左營郡閣);
6. Military and Civilian Department(軍民府)；7. Dawang Temple(大王廟); 8. Bazong Office (把總署);
9. Wubu Gate (物阜門); 10. Guanyin Attic (觀音閣); 11. Fort Barbette (砲台); 12. Shigui Pond (石龜潭);
13. Datang (大塘).

b：1. Pazhou Tower (琶洲塔); 2. Conprador Store (買辦行)；3. Citizen House (民房);
4. Sisha Xun (四沙汛); 5. Yongjin Camp (永靖營); 6. Huangpu Tax Pavilion (黃埔稅館);
7. Huatuo Temple (華佗廟); 8. Shenjin village (深井鄉); 9. Guanshan Village(官山鄉).

Figure 7. Two chorographic maps show the location of Water Deities' temples.

4.3. The Integration of Official Rites and Folk Beliefs

The transformation of builders' identities directly reflects the process of integrating official rites and folk beliefs in the Water Deities. This study has shown the degree of

participation of officials and folks in these activities. As Table 3 revealed, during the mid-to-late Qing era, folk participation was prominent in constructing the temples. In fact, until the mid-Qing period, the officials still led most construction and repair of the temples. For instance, the earliest Nanhaishen temple was built under the official inspector in the Sui Dynasty. Until Emperor Kangxi granted the horizontal inscribed board 'Wanli Bocheng' 萬里波澄 (which means that there are only clear and calm waves on the waterway for thousands of miles) (Cui 2017, vol. 6, pp. 186–87), it still had the strongly official feature. After the Qianlong reign, with the increase in the number of Nanhaishen temples, each village began to sacrifice separately to the deity (Wang 2015, vol. 14, p. 248). Building temples together by local gentries and villagers became increasingly popular (Deng 2015, vol. 12, p. 270).

Table 3. The statistics on the temple builders and their identities in the Qing Dynasty.

Water Deities	The Time of Building	Builders' Information	Social Attribute
Nanhaishen	The 49th year of the Qianlong reign (1784)	Jointly built by 7 villages in Dongshan	Folk
	The 60th year of the Qianlong reign (1795)	Jointly built by gentries and villagers who lived in Sangyuan dyke 桑園圍	Folk
	The 15th year of the Jiaqing reign (1810)	Built by Zhang Bailing 張百齡 Zongdu 總督 (Governor-general)	Official
Tianfei	The 18th year of the Shunzhi reign (1661)	Repaired by the donations of Pingnanwang 平南王 and Zhang Zongzhen 張總鎮 and other officials	Official
	The 5th year of the Qianlong reign (1740)	Built by Tan Zhaoji 譚肇基	Folk and Official
	The 14th year of the Qianlong reign (1749)	Built by a villager named Zhang 張氏	Folk
	The 18th year of the Qianlong reign (1753)	Built by a villager named Deng Lianchang 鄧連昌	Folk
	The 3rd year of the Jiaqing reign (1798)	Donated by Dong and Xin villagers	Folk
	The 19th year of the Daoguang reign (1839)	Repaired by Zhang Yutang 張玉堂, a Chiliarch	Official
	The 4th year of the Daoguang reign (1824)	Repaired by Villagers Suhai 蘇海 and so on	Folk
Beidi	The 7th year of the Shunzhi reign (1650)	Donated and repaired by Zongzhenban 總鎮班 (Commander-in-Chief)	Official
	During the Kangxi Reign (1662–1722)	Built by villagers	Folk
	The 24th year of the Kangxi reign (1685)	Donated and repaired by scholars and merchants	Folk
	The 11th year of the Yongzheng reign (1733)	Built by villagers Liang Jinzhen 梁金震 and others	Folk
	The 22nd year of the Jiaqing reign (1817)	Repaired by the county magistrate, Ma Dezi 馬德滋, and villagers	Folk and Official
	During the Xianfeng Reign (1851–1861)	Donated by gentries and villagers	Folk

From the above table, one can also see a similarity in the identities of the builders of the Nanhaishen and Tianfei temples, which reflects the cooperation of official and folk sacrifices to the deities. For instance, the Tianfei temple in Shunde, initially, was donated and built by Zhixian 知縣 (county magistrate) named Ou Xuecheng 歐學程, Tongpan 通判 (vice governor) named Ou Weizheng 歐偉政, Zhizhou 知州 (state official) named Ou Daxun 歐達勳 and his son (Wang 2015, vol. 13, p. 251). Local people also took part in the construction actively. As *Nanhai Xianzhi* 南海縣誌 (Chorography of Nanhai County) records, Chen Zhenxiang and Zhou Wen, who were iron merchants, raised more than five hundred golds to repair the temple, which the money was spent on convening the craftsmen, preparing materials, enlarging building areas and changing etiquette (in sacrifices) (Deng 2015, vol. 30, p. 588).

In the mid-Qing period, the construction and repair of the temples shifted from individual donations to collective financing, and one example is that the Tianhou temple in Xin'an Pingzhou 新安坪洲 was collectively donated by two villages, Dong and Xin. In the late Qing period, the construction and repair of temples were completed mainly by clans, such as the temple in Dongguan Zhongtang village 東莞中堂鎮. A record tells that 288 people participated in the building and financing of the temple, and among them, 272 had Wu 吳 as their surname (Wan and Wu 2014, p. 177).

In contrast, the construction and repair of the Beidi Ancestor Temple of Foshan were mainly led by local peoples, as a record said that the gentry Li Jingwen and other villagers repaired it (the temple), and later, some merchants joined to expand the temple during the Kangxi reign (Ruan 2002, vol. 145, p. 242). The process of expansion of Beidi belief also showed the elements of clans. Evidence can be found in an inscription of the stele of the repair of the Beidi temple. It says that all clansmen worshiped the Beidi temple in the north of the towns (Li 2013, pp. 436–37). The cooperation in the construction and repair of temples between the officials and the local people were also evident. One example is that in Shunde, a Beidi temple was built by town magistrate Ye Chuchun and other villagers (Zhou 2009, vol. 3, pp. 64–65). Qu Danjun 屈大均, a scholar in the early Qing period, considered that in the PRD, Beidi had a dual identity, namely the local water deity and the northern deity. It reflects two dynamics: one is the obedience and recognition of the local society to the central imperial power, and the other is the integration and interaction between officials' sacrifices to the deities and folks' beliefs (Liu 1994, pp. 107–25).

In the late Qing and early Republican eras, the Water Deities infiltrated each other's sphere of influence, and different deities were worshiped in the same temple, such as a temple in Changzhouxu 長洲墟 consecrated both Nanhaishen and Tianfei (Cai 2019, pp. 57–89). In this stage, the local communities interacted, to a deeper extent, with the beliefs of the Water Deities, which yielded a special function of the region: temples became public spaces where villagers would discuss politics and receive political tutelage. One example is the Tianfei temple, and according to a record, it was later added public facilities such as residences and dormitories for people gathering and discussing (Deng 2015, vol. 30, p. 588). The temple played an essential role in community governance as well as in promoting the development of popular religion and social development in the PRD.

In addition, the spatial evolution and quantitative changes of temples also reflect the integration of the Water Deities. Before the Qing Dynasty, the spatial evolution of the three Water Deities differed; their development was relatively isolated from each other at the time (Figures 3a, 4a and 5a). In the later stages, their development overlapped more extensively in terms of space, among which the highest overlapping areas were Nanhai, Panyu, and Shunde counties (Figures 3d, 4d and 5d). In terms of quantity, there was a large quantity gap between the three Water Deities in the early stages, in which the number of Tianfei temples was far more than the others, indicating that Tianfei Belief has occupied a heavier weight of popular religion in the region. While in the later stages, the proportion tended to be balanced, as the Tianfei temples decreased while the Nanhaishen and Beidi temples increased (Figure 2). It can be deduced that, in the process of the evolution of the three Water Deities Beliefs, the differences gradually narrowed while the congruence showed.

4.4. Safeguarding Local Security

South China pirates were a significant threat that affected the safety of water transport on the Pearl River estuary in the mid and late Qing periods. During the Jiaqing reign, the pirates were rampant in Zhejiang 浙江, Fujian 福建, and Guangdong provinces, where they controlled the navigation and trade along the coast of Guangdong, aggravating the crisis of imperial rule (Murry 1987) After the Opium War, the traditional Canton trade system declined rapidly as Hong Kong became an open port, exacerbating the uncertain factors of safety in water transport in the region. Many records show that praying to the Water Deities for their blessing on local safety became popular and influential in this context.

One typical case is that Zongdu Bailing 百齡, who was ordered to suppress pirates, built the Jinhai Temple 靖海神廟 (the temple of pacifying the sea), which was consecrated to Nanhaishen in the 15th year of the Jiaqing reign (1815). On the one hand, he made use of the pirates' pious belief in the Water Deities to encourage them to surrender. On the other hand, temples were wantonly built and given to the Deities to reward their blessing after completing the suppression of pirates, further reinforcing people's belief in the power of the deities. As the temple's inscription in *Guangdong Tongzhi* 廣東通志 (General Chorography of Guangdong) recorded,

> 'I (Bailing) have observed the Humen seaway and studied tactical defensive strategies to eliminate the pirates. I have prayed to the deities silently that if the sea could restore peace, I would build a temple here. Soon after, I suppressed the pirates who were active alongside central and eastern waterways; some of them were willing to surrender. Yesterday, my troops traced the pirates alongside the western waterway, and because the weather was clear and calm, my ships could reach Qiongnan (瓊南) quickly; therefore, two pirate leaders named Wu and Shi were captured. My troops sailed more than 200 km round trip within only 2 months, which was in debt to the help of the deities 虎門察看海道, 講求戰防, 曾徑默禱於神, 若得肅清洋面, 願於該處鼎建廟宇. 嗣奴才收撫中東兩路, 投誠人等並皆於此受降. 昨者大幫舟師剿捕西路之賊, 風帆順利, 波濤不驚, 得以迅達瓊南, 使烏, 石二等竄逃無及. 舟師往返四千餘里, 為期才兩月有餘, 海隅之民, 鹹稱神助' (Ruan 2002, vol. 146, pp. 253–54)

Clearly, officials had pinned their hope on the Water Deities to solve the pirate problems, as well as to bless the weather conditions on the sea, whether sailing or during the battle. After the pirates surrendered, Nanhaishen has awarded the title 'You Min Fu Hui 佑民溥惠' by the imperial court and granted the horizontal inscribed board as 'Fu You Huan Ying 福祐環瀛' (Ruan 2002, vol. 146, pp. 253–54). The series of records highlight the significance of the Water Deities' position in protecting local security, and the Jinghai temple was built to Bailing's wishes. Similarly, Tianfei and Beidi also were perceived as being able to bless regional safety and good weather at sea. For instance, a record tells that in Xin'an county, located south of Humen, the local public security situations were improved because of a Tianfei temple in Chiwan (赤灣) since the pirates had been calmed down:

> 'In past years, the rampant pirates threatened the people living alongside the coast; Zongdu Bailing and Dudu 都督 (Governor) Tong were ordered to exterminate them. At that time, his fleets were anchored at Chiwan with numerous ships and soldiers. They took off their hats and prayed to Tianhou, hoping the weather would be favorable when they fought the enemies. When on the battle days, the fleets landed on shore safely, and the soldiers fought the enemies effortlessly. No single soldier was dead or disabled, and no plague occur also. After this fight, while the army was stationed there for 3 years, all walks of life in the region enjoyed a great peaceful time 往歲盜賊披猖, 蔓延濱海, 郡邑制府百, 都督童秉鉞南來, 命師剿捕. 維時駐轄赤灣, 舟船成市, 車騎如流, 官弁稽首, 禱祀於後. 將事之日, 乘風克敵, 轉舵登陣, 士無傷殘, 民無瘴厲, 守禦三年, 皆各安如故' (Shu 1974, vol. 24, pp. 608–10)

After the First Opium War, the door of China was forced to open to Western Imperialism, and more foreign ships arrived on the Pearl River. The region was gradually integrated into a Western-dominated modern world trade system, which resulted in a more complex social environment, as recorded that, 'now, the social atmosphere was increasingly opening-up; even though dozens of coastal counties with vast territory and abundant resources were beneficial, harmfulness also fell on the merchants and civilians. Ordinary people had to live and work mixed with evil and unwelcomed people, which was why the coastal areas were unstable and insecure 今則風氣日開, 沿海數十郡縣, 地麦物博, 舶販往來, 大利大害, 叢芽其間, 外宄内奸, 蜮伏狙伺, 而海疆滋以多故' (Ye 2006, pp. 381–82). Possibly associated with the local turmoil, especially since Hong Kong became an open port, the number of temples on the east bank of the Pearl River developed rapidly. A record provides evidence to this inference, which says that maritime security was increasingly severe . . . , (and therefore, everyone) particularly hoped that the deities would protect our people from harm (Ye 2006, pp. 381–82). It is thus safe to assume that the increasing number of temples resulted from the practical purpose of local people who sought spiritual sustenance, hoping the Water Deities would protect their security.

Overall, in the Qing Dynasty, the Water Deities in the PRD performed the role of protecting the local security and thus had strong social impacts; as the Yuxu 玉虛 temple inscription pointed out, the gods blessed merchants, and both fishermen and women appreciated their power and virtues (Pan 1986, p. 167). The increasing influence of Water Deities Beliefs among people and the popularity of the construction of Water Deities' temples were particularly prominent in the local crises and changes, such as the pirates harassing the coastal areas and the reorientation of trade after the First Opium War, which brought about more quarrels and conflicts into the area (Li 2013, pp. 476–78). Meanwhile, because the social functions of the Water Deities played a vital role in the minds of the local people, they believed that 'since the gods blessed us, we should express our gratitude to them; thus, officials and villagers jointly raised funds to build the temple on an auspicious day' (Shu 1974, vol. 24, pp. 610–11). The temples' construction received abundant financing because people believed that through 'renovating temple in order to thank the deities' blessing, everything would go well afterwards' (Guo 2009, vol. 9, pp. 524–25). As a result, the Water Deities Beliefs cultures in the region were expanded, developed and further spread with the material guarantee.

5. Conclusions

A mentality of national governance concerning rites in imperial China was that:

> 'Sacrificial rites and military affairs were two significant events for the state. The sacrificial ceremony would be inherited by future generations when it was magnificent and solemn, even though the ordinary sacrifices should show the state's dignity. The gods and ghosts would enjoy the offerings when people expressed their sincerity during the sacrifice. The administrators adept at governing a county paid extreme attention to sacrificial rites 國之大事, 在祀與戎, 祀事孔明, 後世所忽, 誠使平時, 蠲飾其宇. 祀時展露其誠, 則鬼神其享之矣. 善政者, 其尚留意於斯' (Jin 2015, vol. 27, p. 414)

Sacrificial rites are indispensable in national governance and social life. They are related to the people's ideas of the power of deities and local knowledge of landscape transformation. These two consist of people's sources of decision making. The natural environment of the PRD is characterized by an interchange between rivers and sea and a dense water network, which has fostered the Water Deities Beliefs, including Nanhaishen, Tianfei, and Beidi. This study carries out quantitative statistics and GIS visual reconstruction of the Water Deities' temples in the region, mainly in the Qing Dynasty, and intuitively recoveries their spatiotemporal evolution process. It discusses the influence factors on the evolution and further outlines the social landscape interwoven by local people's material life and their spiritual consciousness. Therefore, two conclusions are drawn.

First, the spatial distribution patterns of beliefs in Nanhaishen, Tianfei, and Beidi are relatively consistent. They initially centered around Canton and its west, namely Foshan and Jiujiang, which were in the jurisdiction of Nanhai County, showing a tendency to move from the center to the periphery (Figure 6). Meanwhile, the three Water Deities were worshiped in different manners, spatially and temporally (Table 2). Nanhaishen Belief was circulated from Canton to its neighboring counties. The sacrificial centers were at Canton in the early Qing period and gradually moved to Jiujiang in the late Qing and early Republican eras (Figure 3). Tianfei Belief was distributed in multiple core areas along the coast since its early introduction and then spread outwardly. In the late Qing and the early Republican eras, its sacrificial centers were Canton, Foshan, Shunde, Hong Kong, Macau, and Zengcheng were the sub-centers, which formed a hierarchical sacrificial circle (Figure 4). Furthermore, Beidi Belief was distributed within smaller regions than the other two deities, mainly around the Ancestor Temple of Foshan at the early stage. By the early 20th century, its sacrificial centers were developed along the Pearl River, the Xijiang River, and the Beijiang River (Figure 5).

Second, the spatiotemporal evolution of the beliefs of Nanhaishen, Tianfei, and Beidi was influenced by multiple factors. Firstly, frequent floods disasters urged the people to rely on the protection of the Water Deities on the spiritual level. The water conservancy was often accompanied by building temple, which formed unique regulations and cultures in the water conservancy society. These regulations and cultures represent that people could adapt to local conditions to transform nature while attributing their success to divine blessings. It thus strengthened the physical image and spiritual orientation of the Water Deities, who could perform blessings related to natural phenomena. Next, traffic and trade became the significant driving force for the development of beliefs in Water Deities because water transport served as the channel for spreading belief. The development of commercial centers in the PRD was highly consistent in terms of space with the development of the sacrificial centers of the Water Deities. The beliefs in Nanhaishen and Tianfei were primordially spread by trade routes, and the spread interacted with the waterways and ports. Beidi Belief was spread from the core area of the belief surrounding the Ancestor Temple to the periphery areas. In the process, the development of commerce in the PRD ensures the material supports for the beliefs' expansion.

Moreover, the interaction between official rites and folk beliefs promoted the integration of different Water Deities' cultures. Since the Qing Dynasty, as revealed in many records, the folk nature of Water Deities' temples was enhanced with increasing enthusiasm of folk participation in the temples' building. As a result, the number of temples rose, and the Water Deities' functions were integrated, strengthening the status of the Water Deities as the local divine protectors. Furthermore, the Water Deities played a role in protecting local security, and their 'power' was more prominent in social crises such as the disturbance of pirates and social and economic instability after the Opium War caused by the gradual collapse of traditional commerce; hence, more temples were built, and the beliefs were further spread. In a word, the distribution space of Water Deities Beliefs in the PRD was jointly influenced by institution, economy, transportation, environment, and other factors. The status of Nanhaishen, Tianfei, and Beidi became more prominent in people's minds, and their supernatural powers were regarded more and more efficiently.

In this paper, local chronicles, historical maps, and GIS technology are comprehensively utilized to visually reconstruct the Water Deities Beliefs in the PRD, which provides a space-time narrative scheme for the historical study of religions. Compared with traditional methods studies that focus more on the evolution of the deities themselves, religious rituals, and other paradigms, such as from the perspectives of sociology and folklore, it highlights the interactive relationship between geographical environment and social development. Although the digital and spatial research scheme is weak in examining the micro-level evolution of specific temples or single events, it depicts the overall process from the macro-spatial and temporal narrative perspective. In this visual reconstruction of spatial and temporal, people's spiritual orientation in Water Deities Beliefs, both influenced by institutional and non-institutional, can be intuitively demonstrated.

Author Contributions: Conceptualization, Formal analysis, Investigation, Visualization, Writing—original draft, Y.L.; Supervision, Y.W. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Not applicable.

Conflicts of Interest: The authors declare no conflict of interest.

Appendix A

Table A1. The documents of the local chorography in the PRD.

Order Number	Title of Documents	Publication Year	Editions	Original Titles in Chinese	Order Number	Title of Documents	Publication Year	Editions	Original Titles in Chinese
1	Chorography of Guangdong Province	1689	(Jin 2015)	(康熙) 廣東通志	21	Chorography of Xiangshan County	1750	IL. 1	(乾隆) 香山縣誌
2	Chorography of Guangdong Province	1731	IL. 1	(雍正) 廣東通志	22	Chorography of Xiangshan County	1828	IL. 1	(道光) 香山縣誌
3	Chorography of Guangdong Province	1822	(Ruan 2002)	(道光) 廣東通志	23	Chorography of Xiangshan County	1879	IL. 4	(光緒) 香山縣誌
4	New Chorography of Guangzhou Prefecture	Ca. Mid-17th century	(Wang 2015)	(康熙) 新修廣州府志	24	Continuation Chorography of Xiangshan County	1923	IL. 4	(民國) 香山縣誌續編
5	New Chorography of Guangzhou Prefecture	1759	IL. 1	(乾隆) 廣州府志	25	Chorography of Xinhui County	1690	IL. 2	(康熙) 新會縣誌
6	New Chorography of Guangzhou Prefecture	1879	(Rui 1966)	(光緒) 廣州府志	26	Chorography of Xinhui County	1741	IL. 1	(乾隆) 新會縣誌
7	Chorography of Nanhai County	1691	IL. 2	(康熙) 南海縣誌	27	Chorography of Xinhui County	1841	IL. 4	(道光) 新會縣誌
8	Chorography of Nanhai County	1741	(Wei 2009)	(乾隆) 南海縣誌	28	Continuatiion Chorography of Xinhui County	1870	IL. 4	(同治) 新會縣續志
9	Chorography of Nanhai County	1835	(Deng 2015)	(道光) 南海縣誌	29	Chorography of Dongguan County	1689	(Guo 2009)	(康熙) 東莞縣誌
10	Chorography of Nanhai County	1872	(Zheng 1967)	(同治) 南海縣誌	30	Chorography of Dongguan County	1732	IL. 1	(雍正) 東莞縣誌
11	Chorography of Nanhai County	1911	(Gui 1974)	(宣統) 南海縣誌	31	Chorography of Dongguan County	1798	IL. 1	(嘉慶) 東莞縣誌
12	Chorography of Panyu County	1774	(Ren 2009)	(乾隆) 番禺縣誌	32	Chorography of Dongguan County	1927	IL. 4	(民國) 東莞縣誌
13	Chorography of Panyu County	1871	(Li 2013)	(同治) 番禺縣誌	33	Chorography of Xinan County	1688	IL. 1	(康熙) 新安縣誌
14	Continuation Chorography of Panyu County	1931	(Liang 1967)	(民國) 番禺縣續志	34	Chorography of Xinan County	1819	(Shu 1974)	(嘉慶)新安縣誌
15	Chorography of Shunde County (13 year)	1674	(Huang 2013)	(康熙) 順德縣誌 (十三年)	35	Chorography of Zengcheng County	1673	IL. 4	(康熙) 增城縣誌
16	Chorography of Shunde County (26 year)	1687	IL. 3	(康熙) 順德縣誌 (二十六年)	36	Chorography of Zengcheng County	1754	IL. 1	(乾隆) 增城縣誌
17	Chorography of Shunde County	1750	(Chen 2009)	(乾隆) 順德縣誌	37	Chorography of Zengcheng County	1921	IL. 4	(民國) 增城縣誌
18	Chorography of Shunde County	1856	IL. 3	(咸豐) 順德縣誌	38	Chorography of Hua County	1687	IL. 1	(康熙) 花縣誌

Table A1. *Cont.*

Order Number	Title of Documents	Publication Year	Editions	Original Titles in Chinese	Order Number	Title of Documents	Publication Year	Editions	Original Titles in Chinese
19	Chorography of Shunde County	1929	(Zhou 2009)	(民國) 順德縣誌	39	Rural Chorography of Hua County	Ca. Late 19th century	IL. 5	(光緒) 花縣鄉土志
20	Chorography of Xiangshan County	1673	IL. 1	(康熙) 香山縣誌	40	Chorography of Hua County	1924	IL. 3	(民國) 花縣誌

Illustrate: The local chronicles used to count the number of water deities' temples in the table above are partly mentioned in the main text, and their editions information is directly marked with reference numbers. Those not mentioned in the text are noted here: 1. Order numbers 1/5/20/21/22/26/30/31/33/36/38 are collected in "Chen, Jianhua (eds.) Ancient Books Collection in Canton·Part of History Chorography Attributes. Guangzhou: Guangzhou Publishing House. 2015", the volume numbers are 12/28/57/58/58/56/47/48/63/53/66, respectively. 2. Order numbers 7/25 are collected in "Yin, Mengxia (eds.) The Rare Chinese Local Chorography Collected in Japan. Beijing: Shumu Wenxian Publishing House. 1992"; the volume numbers are 20/23, respectively. 3. Order numbers 16/18/40 are collected in "Local History Office of Guangdong Province (eds.) The Collected Works of Guangdong Chronicles in the past Dynasties, Guangzhou: Lingnan Publishing House. 2009"; the volume numbers are 18/17/4, respectively. 4. Order numbers 23/24/27/28/32/35/37 are collected in "The Collected Works of Chinese Chronicles · State and County in Guangdong. Shanghai: Shanghai Bookstore. 2013"; the volume numbers are 32/32/33/19/19/5/5, respectively. 5. Order number 39 is collected in "National Science Library (eds.) Series Books of rarely gazetteers collected by the Chinese Academy of Sciences Literature and Information Center (No. 78–82). Beijing: National Library of China Publishing House. 2014"; the volume numbers are 78–82.

Notes

1 Illustrate: left picture authorized with Chinese standard map service system, drawing No. GS (2016)1554, more detail on "Copyright and Licensing" are available via the following link: http://bzdt.ch.mnr.gov.cn/ (accessed on 2 August 2022); Right picture redraws from (Li 1991, pp. 73–78).

2 Apart from mentioning book titles and the city nowadays, this paper will use Canton instead of Guangzhou as the city's name.

3 Illustrate: the coastline of the PRD was continuously silted up in the historical period. Figures 3–6, coastline morphology at different times is drawn based on historical maps. Before Qing Dynasty (<1643) is based on (Tan 1982a, pp. 72–73); Early Qing Dynasty (1644–1722) is based on (Wang 2007), No. 1000000038; Middle Qing Dynasty (1723–1850) is based on (Tan 1982b, pp. 44–45); Late Qing and early Republican China (1851–1920) is based on (Zhang 2009, p. 12). These maps are published in the authoritative department in China, which have been studied abundantly, and their accuracy has been guaranteed to a certain extent. They are used as spatial references for visual reconstruction in this paper. All maps in this paper have been modified by GIS.

References

Cai, Zhixiang 蔡志祥. 2003. Xianggang chagnzhoudao de shenmiao/shequ yu zuqunguanxi 香港長洲島的神廟, 社區與族群關係 [The Relationship between Temple, Community and Ethnic Group in Hongkong Changzhou Island]. In *Minjian xinyang yu shehui kongjian* 民間信仰與社會空間 *[Popular Faith and Social Space]*. Edited by Zhenman Zhen 鄭振滿. Fuzhou: Fujian Peoples Publishing House, pp. 354–81.

Cai, Zhixiang 蔡志祥. 2019. *Choushen yu chaoyou: Jieri he xianggang de diyu shehui* 酬神與趙幽: 節日和香港的地域社會 *[Thanks for God and Pray for the Ghost: Festival and Regional Society in Hongkong]*. Hongkong: Chung Hwa Book Company.

Cantwell, Christopher D., and Kristian Petersen. 2021. *Digital Humanities and Research Methods in Religious Studies*. Berlin: De Gruyter, vol. 2.

Carroll, Bret. 2018. *Spatial Approaches to American Religious Studies. The Oxford Encyclopedia of Religion in America*. Oxford: Oxford University Press, vol. 1.

Chen, Chunsheng 陳春聲. 2001. Zhengtongxing/Difanghua yu wenhua de chuangzhi: Chaozhou minjianshen xinyang de xiangzheng yu lishi yiyi 正統性, 地方化與文化的創制—潮州民間神信仰的象徵與歷史意義 [Legitimacy/Localization and Culture Created: The Symbolic and Historical of Popluar Faith in Chaozhou]. *Journal of Historical Science* 1: 123–33.

Chen, Rongfu 陳榮富. 2004. *Wenhua de yanjin: Zongjiao liyi yanjiu* 文化的演進: 宗教禮儀研究 *[Evolition of Culture: Study of Religious Manner]*. Harbin: Heilongjiang Peoples Publishing House.

Chen, Zhiyi 陳志儀. 2009. *Guangdong lidai fangzhi jicheng (16): Qianlong Shunde Xianzhi:* 廣東歷代方志集成 *(16):* 乾隆順德縣誌 *[The Collected Works of Guangdong Chronicles in the past Dynasties (No. 16): Chorography of Shunde County in Qianlong Reign]*. Guangzhou: Lingnan Publishing House.

Chen, Zhonglie 陳忠烈. 1994. Mingqing yilai Guangdong minjian "Tianhou" nvshen chongbai yu shehui jingji de fazhan 明清以來廣東民間"天后"女神崇拜與社會經濟的發展 [Popular "Tianhou" Goddess Worship and Society Economy Development in Guangdong since Ming and Qing Dynasty]. *Social Sciences in Guangdong* 5: 113–19.

Cui, Bi 崔弼. 2017. *Boluo waiji* 波羅外紀 *[Boluo History]*. Guangzhou: Guangdong People's Publishing House.

Deng, Shixian 鄧士憲. 2015. *Guangzhoudadian·Shibufangzhilei (di sanshiliu ce): Daoguang Nanhaixianzhi* 廣州大典·史部方志類 *(*第三十六冊*): *道光南海縣誌 *[Ancient Books Collection in Canton·Part of History·Chorography Attributes (No. 36): Chorography of Nanhai County in Daoguang Reign]*. Guangzhou: Guangzhou Publishing House.

Faure, David 科大衛. 2016. *Mingqing shehui he liyi* 明清社會和禮儀 *[Society and Manner in Ming and Qing Dynasty]*. Beijing: Beijing Normal University Press.

Feuchtwang, Stephan. 2001. *Popular Religion in China*. New York: Routledge.

Gui, Dian 桂坫. 1974. *Zhongguo fangzhi congshu·Huanan difang (di yibayi hao): Xuantong Nanhaixian zhi* 中國方志叢書·華南地方 *(*第一八一號*): *宣統南海縣誌 *[The Series of Books in Chinese Chorography·South China (No. 181): Chorography of Nanhai County in Xuantong Reign]*. Taibei: Chengwen Publishing House.

Guo, Wenbin 郭文炳. 2009. *Guangdong lidai fangzhi jicheng (22): Kangxi Dongguan Xianzhi:* 廣東歷代方志集成 *(22):* 康熙東莞縣誌 *[The Collected Works of Guangdong Chronicles in the Past Dynasties (No. 22): Chorography of Dongguan County in Kangxi Reign]*. Guangzhou: Lingnan Publishing House.

He, Xi 賀喜. 2011. *Yishen yizu: YueXin'an xinyang goujian de shehuishi* 亦神亦祖*:* 粵西南信仰構建的社會史 *[Both God and Ancestor: Construction of Social History in Southwest of Guangdong]*. Beijing: SDX Joint Publishing Company.

Hong, Zhaohui, and Jianfeng Jin. 2017. The Digital and Spatial Study of Catholic Market in Urban China. In *Urbanization and Party Survival in China: People vs. Power*. Edited by Xiaobing Li and Xiansheng Tian. New York: Lexington Books, pp. 119–31.

Huang, Foyi 黃佛頤. 1994. *Guangzhou chengfang zhi* 廣州城坊志 *[The Chorography of Street and Lane in Canton]*. Guangzhou: Guangdong Peoples Publishing House.

Huang, Jing 黃靜. 1999. Tianfei xinyang de qiyuan, shuxing, chuanbo jiqi lishi wenhua beijing 天妃信仰的起源、屬性、傳播及其歷史文化背景 [The Origin, Attribute, Spread and its Histrocial Culture Backgrand of Tianfei Faith]. *Guangdong Historical Chorography* 2: 43–47.

Huang, Peiyi 黃培彝. 2013. *Zhongguo difangzhi jicheng·Guangdong fuxian zhiji (31): Kangxi Shunde xianzhi* 中國地方誌集成·廣東府縣誌輯 *(31):* 康熙順德縣誌 *[The Collected Works of Chinese Chronicles · State and County in Guangdong (31): Shunde County in Kangxi Reign]*. Shanghai: Shanghai Bookstore.

Huang, Zhigang 黃芝崗. 2012. *Zhongguo de Shuishen* 中國的水神 *[Chinese Water Gods]*. Beijing: SDX Joint Publishing Company.

Huang, Zuo 黃佐. 1991. *Ribencang zhongguo hanjian fangzhi congkan: Jiajin Xiangshan Xianzhi* 日本藏中國罕見方志叢刊*:* 嘉靖香山縣誌 *[The Rare Chinese Local Chorography Collected in Japan: Xianshan County Chorography in Jiajin Reign]*. Beijing: Shumu Wenxian Publishing House.

Huang, Zhaohui 黃兆輝. 2014. *Nanhaishemiao Beikeji* 南海神廟碑刻集 *[The Collected Works of Inscriptions at NanhaiShen Temple]*. Guangzhou: Guangdong Peoples Publishing House.

Jia, Jinhua 賈晉華. 2021. Formation of the Traditional Chinese State Ritual System of Sacrifice to Mountain and Water Spirits. *Religions* 12: 319. [CrossRef]

Jin, Guangzu 金光祖. 2015. *Guangzhoudadian·Shibufangzhilei (di jiu ce): Daoguang Nanhaixianzhi* 廣州大典·史部方志類 *(*第九冊*):* 康熙廣東通志 *[Ancient Books Collection in Canton · Part of History·Chorography Attributes (No. 9): General Chorography of Guangdong in Kangxi Reign]*. Guangzhou: Guangzhou Publishing House.

Jin, Qiupeng 金秋鵬. 1988. Tianfei xinyang yu gudai hanghai 天妃信仰與古代航海 [Tianfei Faith and the Ancient Maritime]. *Journal of Maritime History Studies* 2: 99–104.

Knott, Kim. 2005. Spatial Theory and Method for the Study of Religion. *Temenos* 2: 153. [CrossRef]

Lang, Tingshu 朗廷樞. 1987. Xiu Lingying Ji 修靈應記 [The record of repairing Lingying temple]. In *Mingqing foshan beike wenxian jingji ziliao* 明清佛山碑刻文獻經濟資料. *[Economic Literature of Inscriptions in Foshan in the Ming and Qing Dynasty]*. Edited by Guangdong Academy of Social Sciences 廣東省社會科學院. Guangzhou: Guangdong Peoples Publishing House.

Lei, Wen 雷聞. 2009. *Jiaomiao zhiwai: Suitang guojia jisi yu zongjiao* 郊廟之外：隋唐國家祭祀與宗教 *[Outside the Suburban Temple: National Sacrifices and Religions in Sui and Tang Dynasty]*. Beijing: SDX Joint Publishing Company.

Li, Futai 李福泰. 2013. *Zhongguo difangzhi jicheng·Guangdong fuxian zhiji (6): Tongzhi Panyu xianzhi* 中國地方誌集成·廣東府縣誌輯 *(6):* 同治番禺縣誌 *[The Collected Works of Chinese Chronicles · State and County in Guangdong (6): Chorography of Panyu County in Tongzhi Reign]*. Shanghai: Shanghai Bookstore.

Li, Pingri 李平日. 1991. *Zhujiang sanjiaozhou yiwannianlai huanjing yanbian* 珠江三角洲壹萬年來環境演變 *[Environmental Evolution of the Pearl River Delta in the Past 10000 Years]*. Beijing: China Ocean Press.

Li, Xiaolong 李曉龍. 2012. *Xiqiao tianhou Xinyang yu defang shehui* 西樵天后信仰與地方社會 *[Tianhou Faith and Regional Society in Xiqiao]*. Nanning: Guangxi Normal University Press.

Liang, Dingfen 梁鼎芬. 1967. *Zhongguo fangzhi congshu (di sishijiu hao): Xuantong Panyuxian xuzhi* 中國方志叢書 *(*第*49*號*):* 宣統番禺縣續志 *[The Series of Books in Chinese Chorography (No. 49): Panyu County Chorography in Xuantong Reign]*. Taibei: Chengwen Publishing House.

Liang, Tingnan 梁廷枏. 2002. *Yuehaiguan zhi jiaozhu ben* 粵海關志校注本 *[Guangdong Customs Notes in Check and Annotate]*. Guangzhou: Guangdong Peoples Publishing House.

Liao, Disheng 廖迪生. 2000. *Xianggang tianhou chongbai* 香港天后崇拜 *[Worship Tianhou in Hongkong]*. Hongkong: SDX Joint Publishing Company.

Liu, Zhiwei 劉志偉. 1994. Shenming de zhengtongxing yu difanghua: Guanyu zhujiangsanjiaozhou diqu Beidi chongbai de yige jieshi 神明的正統性與地方化: 關於珠江三角洲地區北帝崇拜的一個解釋 [Legitimacy and Localization of the God: A explaination of Beidi Worship in the Pearl River Delta]. In *Zhongshan daxue shixue jikan (di er ji)* 中山大學史學集刊 *(*第2輯*) [Collection of History Papers in Sun Yat-Sen University]*. Guangzhou: Guangdong Peoples Publishing House, pp. 107–25.

Liu, Zhiwei 劉志偉. 2011. Zhujiang sanjiaozhou juluo kongjian de lishi shehuixue fenxi 珠江三角洲聚落空間的曆史社會學分析 [Historial sociological analysis of settlement space in the Pearl River Delta]. In *Dilixue pinglun (di er ji)* 地理學評論 （第2輯*) [Review of Geography]*. Beijing: The Commerical Press, pp. 14–24.

Liu, Zhiwei 劉志偉. 2019. Difang lishi de minsuxue shijiao: Cong Shenzhen chiwan tianhoumiao tanqi 地方歷史的民俗學視角：從深圳赤灣天后廟談起 [The Perspective of Folklore in Local History: From about Chiwan Tianhou Temple in Shenzhen]. In *Lisu hudong: Zhongguo shehui yu wenhua de zhenghe* 禮俗互動*:* 中國社會與文化的整合 *[The Interaction of Manner and Custom: The Integration of Society and Culture in China]*. Edited by Shiyu Zhao 趙世瑜. Jinan: Qilu Press Company.

Luo, Yixing 羅一星. 2017. *Foshan Beidi wenhua yu shehui* 佛山北帝文化與社會 *[Beidi Culture and Society in Foshan]*. Guangzhou: Guangdong Peoples Publishing House.

Mu, Zhanga 穆彰阿. 1986. *Daqing yitong zhi (26)* 大清一統志 *(26) [The Unity of the Great Qing Dynasty (26)]*. Beijing: Zhonghua Book Company.

Murry, Dian H. 1987. *Pirates of the South China Coast, 1790–1810*. Redwood City: Stanford University Press.

Pan, Lige 潘蔾閣. 1986. Tianhou gumiao beiji 天后古廟重修碑記 [The inscription of repairing Tianhou ancient temple]. In *Xianggang Beimin Huibian (di yi ce)* 香港碑銘彙編 *[The Compilation of Inscriptions in Hongkong]*. Edited by David Faure. Hongkong: Heji Printing Company.

Qiao, Peihua 喬培華. 2015. *Nanhaishen Xinyang* 南海神信仰 *[The God of Nanhai Faith]*. Guangzhou: Sun Yat-sen University Press.

Qu, Dajun 屈大均. 1985. *Guangdong xinyu* 廣東新語 *[New Writings in Guangdong]*. Beijing: Zhonghua Books Publishing House.

Ren, Guo 任果. 2009. *Guangdong lidai fangzhi jicheng (19): Qianlong Panyu xianzhi:* 廣東歷代方志集成 *(19):* 乾隆番禺縣誌 *[The Collected Works of Guangdong Chorographies in the past Dynasties (No. 19): Chorography of Panyu County in Qianlong Reign]*. Guangzhou: Lingnan Publishing House.

Ruan, Yuan 阮元. 2002. *Xuxiu Sikuquanshu·Shibu·Dililei (669–675): Daoguang Guangdong tongzhi* 續修四庫全書·史部·地理類 *(669–675):* 道光廣東通志 *[Continue to repaired Complete Library In Four Divisions·History·Geographic Attributes (669–675): General Chorography of Guangdong in Daoguang Regin]*. Shanghai: Ancient Books Publishing House.

Rui, Lin 瑞麟. 1966. *Zhongguo fangzhi congshu (di yi hao): Guangxu Guangzhoufu zhi* 中國方志叢書 *(*第*1*號*):* 光緒廣州府志 *[The Series of Books in Chinese Chorography (No. 1): Guangzhou Fu Chorography in Guangxu Reign]*. Taibei: Chengwen Publishing House.

Shu, Maoguan 舒懋官. 1974. *Zhongguo fangzhi congshu· Huanan difang (di yiqisan hao): Guangxu Guangzhoufu zhi* 中國方志叢書·華南地方*(*第一七三號*):* 嘉慶新安縣誌 *[The Series of Books in Chinese Chorography· South China (No. 173): Chorography of Xin'an County in Jiaqing Reign]*. Taibei: Chengwen Publishing House.

Situ, Shangji 司徒尚紀. 2001. *Guangdong wenhua dili* 廣東文化地理 *[Cultural Geography in Guangdong]*. Guangzhou: Guangdong Peoples Publishing House.

Su, Mei 蘇嵋. 2015. *Guangzhoudadian·Shibufangzhilei (di liushi ce): Daoguang Nanhaixianzhi* 廣州大典·史部方志類 *(*第六十冊*):* 康熙三水縣誌 *[Ancient Books Collection in Canton·Part of History·Chorography Attributes (No. 60): Chorography of Sanshui County in Kangxi Reign]*. Guangzhou: Guangzhou Publishing House.

Tan, Qixiang 譚其驤. 1982a. *Zhongguo lishi dituji (di ba ce)* 中國歷史地圖集 *(*第*6*冊*) [The Historical Atlas of China (Vol. 6)]*. Beijing: China Cartographic Publishing House.

Tan, Qixiang 譚其驤. 1982b. *Zhongguo lishi dituji (di liu ce)* 中國歷史地圖集 *(*第*8*冊*) [The Historical Atlas of China (Vol. 8)]*. Beijing: China Cartographic Publishing House.

Tan, Shibao 譚世寶. 2013. Cong aomen kan tianfei yu mazu xinyang de shiming yanbiao 從澳門看天妃(后)與媽祖信仰的名實演變 [The Evolution of named "Tianfei" and "Mazu" in Macau]. *Studies in World Religions* 1: 59–70.

Unknown. 2006. Chongxiu Tianhoumiaoo beiji 重修天后廟碑記 [The inscription of repairing Tianhou temple]. In *Guangzhou Beikeji* 廣州碑刻集 *[The Collected Works of Inscriptions in Guangzhou]*. Edited by Jianmin Xian 冼劍民. Guangzhou: Higher Education Press.

Van Dyke, Paul A. 2005. *The Canton Trade: Life and Enterprise on the China Coast, 1700–1845*. Hong Kong: Hong Kong University Press.

Wan, Mingxie 萬銘階, and Shifan Wu 吳世繁. 2014. Chongxiu yuxu gumiao 重修玉虛古廟 [Rebuilding Yuxu ancient temple]. In *Dongguan Lidai Beike Xuanji* 東莞歷代碑刻選集 *[The Collected of Successive Dynasties Inscriptions in Dongguan]*. Edited by Dongguan Culture, Radio, Press and Publication Bureau 東莞市文化廣電新聞出版局. Shanghai: Ancient Books Publishing House.

Wang, Chuan 王川. 2002. *Nanhaishenmiao* 南海神廟 *[The Temple of Nanhaishen]*. Guangzhou: Guangdong Peoples Publishing House.

Wang, Jianchuan 王見川. 2010. *Zhongguo jinshi minjian Xinyang (Song yuan ming qing)* 中國近世民間信仰 *(*宋元明清*) [China Popular Faith in Modern Times (the Song/Yuan/Ming/Qing Dynasty]*. Shanghai: Shanghai Peoples Publishing House.

Wang, Qianjin 汪前進. 2007. *Qingting sanda shice quantuji* 清廷三大實測全圖集 *[The Atlas of three actual measurements in the Qing Dynasty]*. Beijing: Foreign Languages Press.

Wang, Yongrui 汪永瑞. 2015. *Guangzhoudadian·Shibufangzhilei (di ershiliu ce): Daoguang Nanhaixianzhi* 廣州大典·史部方志類 *(*第二十六冊*):* 康熙新修廣州府志 *[Ancient Books Collection in Canton·Part of History·Chorography Attributes (No. 26): Guangzhou Fu New Chorography in Kangxi Reign]*. Guangzhou: Guangzhou Publishing House.

Wang, Yuanlin 王元林. 2006. *Guojia jisi yu hanshang sichouzhilu yiji: Guangzhou nanhaishenmiao yanjiu* 國家祭祀與海上絲綢之路遺跡*:* 廣州南海神廟研究 *[National sacrifice and Maritime Silk Road Relics: A study of Nanhai temple in Guangzhou]*. Beijing: Zhonghua Book Company.

Wang, Yuanlin 王元林. 2021. The Sacrificial Ritual and Commissioners to the South Sea God in Tang China. *Religions* 12: 960. [CrossRef]
Warf, Barney, and Santa Arias, eds. 2009. *The Spatial Turn: Interdisciplinary Perspectives*. Abingdon: Routledge.
Wei, Wan 魏綄. 2009. *Guangdong lidai fangzhi jicheng (12): Qianlong Nanhai Xianzhi:* 廣東歷代方志集成 *(12):* 乾隆南海縣誌 *[The Collected Works of Guangdong Chronicles in the past Dynasties (No. 12): Chorography of Nanhai County in Qianlong Reign]*. Guangzhou: Lingnan Publishing House.
Wu, Rongguang 吳榮光. 2015. *Guangzhoudadian·Shibufangzhilei (di shiyi ce): Qianlong Foshan zhongyixiang zhi* 廣州大典·史部方志類 *(*第十一冊*): 道光佛山忠義鄉志 [Ancient Books Collection in Canton·Part of History·Chorography Attributes (No. 11): Foshan Loyalty Village Chorography in Daoguang Reign]*. Guangzhou: Guangzhou Publishing House.
Xiao, Haiming 肖海明. 2016. *Foshan zumiao* 佛山祖廟 *[The Ancestor Temple of Foshan]*. Guangzhou: Guangdong Peoples Publishing House.
Yang, Fenggang. 2018. *Atlas of Religion in China—Social and Geographical Contexts*. Leiden: Brill.
Ye, Mingchen 葉名琛. 2006. Chongxiu Nanhaishenmiao beiji 重修南海神廟碑記 [The inscription of repairing Nanhaishen temple]. In *Guangzhou Beikeji* 廣州碑刻集 *[The Collected Works of Inscriptions in Guangzhou]*. Edited by Jianmin Xian 冼劍民. Guangzhou: Guangdong Higher Education Press.
Yin, Guangren 印光任. 1968. *Zhongguo fangzhi congshu (di yilingjiu hao): Qianlong Aaomen Jilve* 中國方志叢書 *(*第一零九號*): 乾隆澳門紀略 [The Series of Books in Chinese Chorography (No. 109): Macau Notes in Qianlong Reign]*. Taibei: Chengwen Publishing House.
Yu, Xin 餘欣. 2012. *Zhonggu shidai de liyi/zongjiao yu zhidu* 中古時代的禮儀, 宗教與制度 *[Manners/Religions and Regime in the Middle Ages]*. Shanghai: Shanghai Classics Publishing House.
Zeng, Zhaoxuan 曾昭璇. 1991. *Guangzhou lishi dili* 廣州歷史地理 *[Historical Geography in Canton]*. Guangzhou: Guangdong Peoples Publishing House.
Zeng, Zhaoxuan 曾昭璇. 1994. *Linnan shidi yu minus* 嶺南史地與民俗 *[Historical Geography and Folk-Custom in South of the Five Ridges]*. Guangzhou: Guangdong Peoples Publishing House.
Zhang, Renjun 張人駿. 2009. *Guangdong lidai fangzhi jicheng (Shengbu30): Minguo Shunde xianzhi:* 廣東歷代方志集成 *(*省部*30): 宣統廣東輿地全圖 [The Collected Works of Guangdong Chorographies in the past Dynasties (Provincial Department No. 30): Complete Map of Guangdong Province]*. Guangzhou: Lingnan Publishing House.
Zhao, Shiyu 趙世瑜. 2002. *Kuanghuan yu Richang: Mingqing yilai de miaohui yu minjian shehui* 狂歡與日常:明清以來的廟會與民間社會 *[Carnival and Daily Life: Temple Fair and Popular Society since the Ming and Qing Dynasty]*. Beijing: SDX Joint Publishing Company.
Zheng, Mengyu 鄭夢玉. 1967. *Zhongguo fangzhi congshu (di wushi hao): Tongzhi Nanhaixian zhi* 中國方志叢書 *(*第*50*號*):* 同治南海縣誌 *[The Series of Books in Chinese Chorography (No. 50): Chorography of Nanhai County in Tongzhi Reign]*. Taibei: Chengwen Publishing House.
Zhou, Shujia 周樹佳. 2009. *Xianggang zhushen qiyuan/miaoyu yu chongbai* 香港諸神起源、廟宇與崇拜 *[The Origin/Temple and Worship of Gods in Hongkong]*. Hongkong: Chung Hwa Book Company.
Zhou, Zhizhen 周之貞. 2009. *Guangdong lidai fangzhi jicheng (18): Minguo Shunde xianzhi:* 廣東歷代方志集成 *(18):* 民國順德縣誌 *[The Collected Works of Guangdong Chronicles in the past Dynasties (No. 18): Chorography of Shunde County in the Republic of China]*. Guangzhou: Lingnan Publishing House.
Zhu, Guangwen 朱光文. 2008. Shenming jisi yu xiangcun quanli guju: Yi Panyu daguwei Kanggong chongbai wei zhongxin de taolun 神明祭祀與鄉村權力格局: 以番禺大穀圍康公崇拜為中心的討論 [The Gods Worship and Rural Power Pattern: A Disscision of Kanggong Worship in Daguwei, Panyu]. *South of the Five Ridges Literature and History* 1: 45–54.
Zou, Weidong 鄒衛東. 2000. Mingqing Zhujiangsanjiaozhou diqu dui "Beidi" de chongbai 明清珠江三角洲地區對 "北帝" 的崇拜 [Beidi Worship in the Pearl River Delta in the Ming and Qing Dynasty]. *South of the Five Ridges Literature and History* 3: 51–54.

MDPI
St. Alban-Anlage 66
4052 Basel
Switzerland
Tel. +41 61 683 77 34
Fax +41 61 302 89 18
www.mdpi.com

Religions Editorial Office
E-mail: religions@mdpi.com
www.mdpi.com/journal/religions

Academic Open
Access Publishing

www.mdpi.com

ISBN 978-3-0365-7801-9