

Digital Empowerment Facilitates the Inheritance of Yanhuang Ancestral Culture and Strengthens the Sense of Community of the Chinese Nation

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Abstract: Guided by the national cultural digitalization strategy, digital technologies such as big data, VR/AR, and generative AI provide a new path for the dynamic inheritance of Yanhuang ancestral culture. Chaling Lushui Ancient Lu State in Hunan, as the core activity area of Emperor Yan Yuwang, retains complete documentation, archaeological, and folk evidence, serving as a crucial sample for interpreting the Southern Yan Emperor culture. This paper examines the historical logic of Yanhuang culture in carrying the identity of the community, analyzes the triple value of digital technologies in addressing the challenges of traditional cultural inheritance, proposes digital empowerment implementation paths from three perspectives—historical cognition, emotional connection, and spiritual transformation—and relies on the unified cultural memory of common ancestry to reinforce the “five identities,” thereby constructing a shared spiritual home for the Chinese nation through digital means.

Keywords: Digital empowerment; Yanhuang ancestral culture; Ancient Lu State; Cultural digitalization; Sense of community of the Chinese nation

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1. Introduction

Emperors Yan and Huang are recognized as the cultural progenitors by all Chinese people both at home and abroad. The historical narrative of the integration and coexistence of these two tribes lays the foundational basis for the development of Chinese civilization and serves as the deepest and most stable core spiritual bond connecting various ethnic groups within China, as well as compatriots in Hong Kong, Macao, Taiwan region, and overseas Chinese. Under traditional inheritance systems, mainstream dissemination and inheritance models such as physical exhibition displays, on-site archaeological studies, and offline

ancestral worship ceremonies generally suffer from practical limitations such as geographical and temporal constraints, regional fragmentation of cultural resources, and fragmented historical narratives. Relying solely on offline carriers makes it difficult to systematically and completely restore the overall historical picture of the migration, interaction, and integration of multiple tribes in ancient times. Strengthening the sense of community of the Chinese nation is the main theme of the Party's ethnic work in the new era. Deeply excavating and innovatively revitalizing the shared cultural symbols of the common ancestors of all ethnic groups, and consolidating the shared cultural foundation of the ancestors for all people, are key approaches and important paths for continuously constructing a shared spiritual home for the Chinese nation ^[1]. From the perspective of the development of civilization, the deep integration of the Yan and Huang tribes marks the historical origin of the formation of the diverse yet unified pattern of Chinese civilization: Emperor Yan Shennong pioneered agriculture, identified medicinal herbs, and initiated medical civilization, solving the survival and subsistence challenges of ancient people; Emperor Huang Xuanyuan established ritual systems and harmonized various tribes, laying the foundation for early governance order. Together, they shaped the collective identity of "descendants of Yan and Huang," transcending geographical, ethnic, and national boundaries, and carrying forward the excellent Chinese cultural genes of harmonious coexistence, universal harmony, and unity across generations.

The "Yi·Xi Ci Zhuan Xia" explicitly records that Shennong carved wood to create plows and other agricultural tools, popularized agricultural production techniques, and led ancient people to transition from a primitive lifestyle of single fishing and hunting to a stable agricultural civilization era. The Yan tribe inherited for seventeen generations, spanning over five hundred years, with the tribe continuously migrating and expanding its territory. One branch moved eastward into the heartland of the Central Plains to take root and develop, while another branch traveled southward along the Yangtze River to Jingchu, ultimately reaching the eastern Hunan region, continuously promoting the exchange of production skills, mixed residence, and cultural mutual learning among people in the Yellow River and Yangtze River civilizations. To this day, Yan Emperor cultural relics are widely distributed in various places such as Baoji, Shaanxi, Suizhou, Hubei, and Chaling, Hunan, while the northern Central Plains region preserves a complete and rich system of Yellow Emperor cultural relics. However, at present, cultural and historical research institutions and cultural museums in various regions mostly conduct independent data organization and cultural exhibitions, with regional research conducted in isolation and resources not interconnected. Local narratives are confined to local relics, artificially fragmenting the coherent and unified narrative chain of the origin and development of Chinese civilization.

In the chapter "The Mysterious Ancient Lu State" from "A Brief Study of Chaling, the Hometown of Shennong" by Ding Fudong and Zhou Zhongyuan, based on dual evidence from historical local chronicles and unearthed archaeological artifacts, it is proposed that the Yellow Emperor once enfeoffed Emperor Yan Yuwang to settle in the mountainous area of Lushui in Chaling, eastern Hunan, and established the Ancient Lu State there. This region is densely covered with karst caves, surrounded by mountain barriers, and has vast river valleys and flat lands, with natural conditions suitable for long-term settlement and reproduction by ancient tribes. Ancient people here accomplished rice domestication, identified medicinal herbs, and opened up early primitive trading markets, leaving behind dozens of complete ancient production and living relics within the territory. Today's Yanling County was separated from Chaling during the Song Dynasty, and the Yan Emperor Mausoleum within its borders is traditionally believed to be the resting place of Shennong.

The Ancient Lu State was the core activity area where the Yan tribe engaged in civilizational creation and reproduction for an extended period, and the two places share a common lineage, both belonging to the complete Southern Yan Emperor cultural system^[2].

Meanwhile, the inherent model of cultural dissemination relying on the preservation of physical relics and offline on-site viewing has inherent limitations that are difficult to avoid: open-air relics are constantly subjected to natural erosion such as wind and rain, posing a risk of irreversible damage; paper-based ancient books and inscribed documents are prone to aging, mildew, damage, and even loss; offline exhibition halls and archaeological sites are also constrained by geographical location and the cost of travel, making it difficult for people in remote areas, compatriots in Hong Kong, Macao, Taiwan region, and overseas Chinese to conduct complete and systematic root-seeking activities in person. Based on the top-level deployment of the national cultural digitalization strategy, supported by digital technologies such as big data and artificial intelligence, integrating cultural artifacts, archaeological sites, and documentary resources of Yanhuang culture scattered across the north and south, and establishing an integrated digital narrative platform that covers the entire region and is interconnected, breaking down regional resource barriers and offline dissemination limitations, has become an inevitable path and a choice of the times to eliminate the barriers of fragmented regional narratives and foster cultural identity of common ancestry among the entire nation at home and abroad^[3].

2. The coexistence of Yan and Huang Tribes: The historical foundation of a diverse yet unified civilization

From its origins, Chinese civilization has exhibited characteristics of multiple sources converging and coexisting as one. The confluence of the Yan and Huang tribes represents the earliest historical prototype of the Chinese nation's community. The Yan tribe migrated southward, pioneering agricultural civilization in the Yangtze River basin, while the Huang tribe integrated various northern tribes to establish an early unified order. Prolonged exchanges and mutual learning between these two major civilizations in the north and south collectively laid the foundation for the development of Chinese civilization.

In terms of the geographical distribution of relics, Yan Emperor cultural relics are distributed in a belt-like pattern along the migration route of Shennong: Baoji in Shaanxi is the early birthplace of the Yan Emperor, Suizhou in Hubei preserves agricultural relics of the Lieshan clan, and the Ancient Lu State in Lushui, Chaling, Hunan, is a key area for the settlement and development of Emperor Yan Yuwang. Historical records and archaeological artifacts from these three locations mutually corroborate the complete trajectory of the Shennong tribe's continuous southward migration and integration with indigenous southern ethnic groups^[2]. The geographical conditions of the Ancient Lu State at that time, with its surrounding mountains, fertile river valleys, and natural karst caves, provided a basis for the stable reproduction of ancient tribes. Ancestors here accomplished a series of civilizational creations, including rice domestication, herb identification, primitive commerce, and the creation of ritual and music, leaving complete evidence of the development of ancient agricultural civilization. From a historical perspective, Yanling County, where the Yan Emperor Mausoleum is located, was only separated from Chaling during the Song Dynasty. The Ancient Lu State encompassed both the cultural sectors of Emperor Yan's activities during his lifetime and his burial, connecting the complete historical narrative of the Southern Yan Emperor.

Relics with the same origins in the north and south collectively prove that Yan-Huang culture is not exclusive to a single region or ethnic group but is a civilizational root created jointly by ancient tribes and shared by all Chinese people. However, traditional paper-based documentation and static cultural relic exhibition modes can only fragmentarily display local historical materials, failing to connect the complete historical trajectory of the migration, integration, and widespread presence of the Yan and Huang tribes across China. This makes it difficult to support the construction of a unified historical perception of the community and urgently requires digital means to achieve comprehensive resource integration.

3. Digital and intelligent technologies address three practical challenges in the inheritance of Yan-Huang Culture

3.1. Digital archiving: Solving the long-term preservation challenge of physical relics

There is a vast number of ancient Yan-Huang sites, stone inscriptions, and ancient books and documents across the country. Open-air relics in the wild are constantly eroded by wind and rain, while paper-based ancient books face risks of aging, damage, and loss. Traditional physical storage rooms and cultural relic exhibition halls find it difficult to achieve permanent and effective protection^[4]. By relying on 3D laser scanning, AI image restoration, and text recognition technologies, high-precision 3D modeling can be conducted on sites such as the Huangdi City ruins in the Central Plains, the Shennong Ancient Cave in the Ancient Lu State in eastern Hunan, and carbonized rice specimens. Digital collation and restoration can be completed for ancient books such as Huainanzi and Chaling Prefecture Records, and a unified national digital literature database on Yan-Huang culture can be established.

The physical historical materials such as the Lushui stone inscriptions, Yaolong, and the Tianzi Tomb recorded in A Brief Study of Chaling, the Hometown of Shennong supplement exclusive digital materials on Southern Yan Emperor culture, achieving cloud-based interconnection of Yan-Huang relics in the north and south. This permanently preserves the common historical material evidence of the Chinese nation through digital archives, safeguarding the cultural foundation of common ancestry at the material level^[2].

3.2. Immersive digital storytelling: Breaking the spatial and temporal barriers of offline visits

Physical exhibition halls and open-air sites are constrained by geographical location and travel costs, making it difficult for people in remote areas, compatriots in Hong Kong, Macao, Taiwan region, and overseas Chinese to conduct root-seeking activities in person. It is also challenging for the general public to intuitively perceive the full picture of the integration and development of ancient tribes^[5]. By relying on VR scene restoration, digital human interactive explanations, and online virtual exhibition halls, key historical scenes such as Emperor Yan cultivating five grains, testing medicines on himself, and establishing markets at noon, as well as Emperor Huang unifying symbols at Fushan and harmonizing various tribes, can be dynamically restored. The complete trajectory of the migration and exchange of skills between northern and southern tribes can be dynamically presented.

A cloud-based online root-seeking and ancestral worship platform can be opened to global Chinese people, allowing users to immersively experience ancient agricultural and sacrificial scenes without leaving their homes. By utilizing AIGC short video tools to simplify weighty ancient book materials, lightweight animations and popular science shorts can be adapted to the fragmented reading habits of young people,

promoting the profound/substantial) ancestral culture out of academic circles and into the daily lives of the general public.

3.3. Big data resource coordination: Eliminating fragmented regional narratives

Currently, cultural and historical research institutions and cultural museums in various regions independently organize and display Yan-Huang culture, lacking a unified coordination platform. Each region only focuses on narratives based on local relics, which can easily lead to regional cultural competition and fragment the complete history of the unified origin of the Chinese nation^[3]. By establishing a national digital collaboration big data platform for Yan-Huang culture, data ports of cultural museums in the north and south can be connected, and all research materials on the Huang and Yan Emperor systems can be integrated. Supported by official history, archaeology, and local chronicles, the complete historical trajectory of the separation, integration, and widespread presence of the Yan and Huang tribes across China can be sorted out, and the core connotation of “common ancestry and diverse coexistence” can be uniformly interpreted.

The big data platform guides people of all ethnic groups to transcend a single regional perspective, recognize the Yan and Huang Emperors as the common cultural progenitors of all Chinese people from the overall historical perspective of the Chinese nation, eliminate cognitive fragmentation caused by local competitive narratives, and establish a complete and unified perception of the origin of Chinese civilization.

4. Digital and intelligent activation of Yan-Huang culture: Layered strengthening of the sense of community of the Chinese nation

The core goal of digital and intelligent empowerment in the inheritance of ancestral culture is to guide people of all ethnic groups to establish a community concept of sharing weal and woe, honor and disgrace, life and death, and destiny based on the unified historical memory of common ancestry. This aims to unify the cultural synergy of the entire nation from three levels: historical cognition, emotional connection, and spiritual inheritance.

4.1. Digital traceability: Strengthening the foundation of historical identity of the community

An integrated digital resource database that integrates archaeological, ancient book, and local cultural and historical achievements from the north and south comprehensively presents the complete trajectory of the Huang Emperor tribe taking root in the Central Plains, the Yan Emperor tribe pioneering the south, and the continuous exchange and integration between the two ethnic groups. This visually confirms that the diverse yet unified Chinese civilization has taken shape since the era of the progenitors. People of all ethnic groups can share a unified and complete Yan-Huang narrative for free through the cloud, clearly recognizing that Yan-Huang relics in various regions across the north and south belong to the common civilizational assets of the Chinese nation. This breaks down regional fragmentation perceptions at the level of civilizational origin and strengthens the historical foundation of unified coexistence.

4.2. Digital inclusiveness: Building a bond of emotional identity for all people

Digital dissemination possesses inclusive characteristics without geographical or identity barriers, allowing people of all ethnic groups and overseas Chinese to browse and interactively experience Yan-Huang digital

cultural resources for free. Cloud-based root-seeking and ancestral worship and virtual ancestral worship functions are opened to overseas Chinese, transcending geographical barriers and awakening the sense of bloodline belonging among Chinese people at home and abroad. This forms a spiritual synergy of global Chinese people sharing the same origins and continuously enhances the international appeal of Chinese culture and national cohesion ^[6]. At the same time, lightweight digital content in multiple languages is launched for young people and ethnic minority groups, opening up emotional communication channels across different circles and strengthening the sense of identity with their respective ethnic groups. It further eliminates cultural estrangement caused by regional differences and generational gaps, realizes the cross-time and cross-space inheritance of Yan-Huang civilization, and consolidates the solid spiritual foundation for the integration and unity of the entire Chinese nation in the digital era.

4.3. Digital carriers: Inheriting the ancestral spirit and empowering national rejuvenation

Emperor Yan's fearlessness in the face of difficulties and his dedication to serving the people, as well as Emperor Huang's inclusiveness, harmony, and unification of all directions, embody the pioneering, united, and dedicated spirit, which is the source of the Chinese national spirit. By relying on digital and intelligent carriers such as VR interaction, digital cultural and creative products, and online research studies, the contemporary value of the ancestral spirit can be deeply interpreted. The civilizational core of harmonious coexistence and joint construction and sharing in ancient times can be transformed into a spiritual driving force for national unity, common prosperity, and coordinated development in the new era, providing cultural and spiritual support for all ethnic groups to jointly advance modernization. Digital platforms vividly reproduce ancient farming techniques and kiln craftsmanship originated from Emperor Yan's enlightenment, letting audiences intuitively perceive the origin of integrated agriculture and industry civilization. Such immersive digital presentation shortens the distance between ancient civilization and modern society, encourages young people to identify with local cultural roots, and injects lasting cultural vitality into the integrated development of rural industries and the digital economy.

5. Conclusion

Yan-Huang ancestral culture is the core root that carries the memory of the common ancestry of the Chinese nation. The Ancient Lu State in Lushui, Chaling, Hunan, retains complete documentation, sites, and folk evidence, comprehensively recording the historical trajectory of the southward migration, integration, and pioneering of agricultural civilization by the Yan Emperor tribe. It is a key local sample for interpreting the diverse yet unified origin of Chinese civilization. Traditional offline protection and on-site exhibition modes have shortcomings such as high preservation pressure, strong spatial and temporal constraints, and fragmented resources, making it difficult to fully leverage the value of ancestral culture in unifying and inspiring people.

Against the backdrop of the implementation of the national cultural digitalization strategy, digital and intelligent technologies such as big data, VR/AR, and generative AI provide new solutions for the dynamic inheritance of Yan-Huang ancestral culture. Through permanent digital archiving, immersive cross-regional dissemination, and comprehensive resource coordination through big data, the historical identity, emotional identity, and spiritual identity of the entire nation can be strengthened layer by layer. In the new era,

advancing the digital construction of ancestral culture must adhere to the main theme of strengthening the sense of community of the Chinese nation, integrate scattered Yan-Huang cultural resources in the north and south, eliminate fragmented regional narratives, activate the cultural memory of common ancestry through digital means, continuously strengthen the shared spiritual home of the Chinese nation, and provide lasting and profound cultural and spiritual support for the realization of the great rejuvenation of the Chinese nation.

Disclosure statement

The authors declare no conflict of interest.

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