The Contributions and Impact of a Century of Dunhuang Art Research

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Abstract

The study of Dunhuang art began in the 1940s and flourished during China's reform and opening-up period. Over the decades, a wealth of research has emerged across a wide range of disciplines. Previously unsolved questions about China's art and culture, constrained by a lack of physical or visual evidence, have been clarified thanks to the wealth of materials preserved in Dunhuang. These findings have filled critical gaps in art history, driving advancements in the study of Chinese architecture, sculpture, painting, calligraphy, and Buddhist art archaeology, as well as the histories of music, dance, and clothing and textiles. The rich content and artistic materials of the Dunhuang caves serve as an invaluable resource for modern artistic innovation. Contemporary creators frequently draw inspiration from Dunhuang, integrating its cultural elements into diverse forms of modern art, including fashion design, digital media, animation, film, and documentaries. As internet technology evolves, the preservation and study of Dunhuang art remain an ongoing and vital endeavor to foster cultural development in the new era with Chinese characteristics.

Keywords

Dunhuang studies have evolved for over a century, encompassing all areas of the humanities. In the field of art, research primarily focuses on the Dunhuang

Caves, including the Mogao Caves 莫高窟, Yulin Caves 榆林窟, and Western Thousand Buddha Caves 西千佛洞, as well as on ancient silk and paper paintings and calligraphic manuscripts unearthed from the Library Cave 藏經洞. The Dunhuang caves, first created in 366 during the Former Qin (351–394) period, saw continued expansion through various dynasties such as the Northern Liang (397–460), Northern Wei (386–534), Western Wei (535–556), Northern Zhou (557–581), Sui (581–618), Tang (618–907), Five Dynasties (907–960), Northern Song (960–1036), Western Xia (1038–1227), and Yuan (1271–1368), spanning a millennium. The caves integrated artistic traditions from various ethnic groups both within China and abroad. This fusion resulted in a Buddhist art system with distinctive Chinese characteristics, representing significant achievements in Chinese Buddhist art from the 4th to the 14th centuries. Due to the scarcity of surviving art relics from the Wei (220–265) and Jin (265–316) periods through the Sui and Tang periods, Dunhuang art offers an invaluable source of cultural material. These resources provide critical insights into Chinese art history, making it possible to gain a more comprehensive understanding of the artistic heritage of ancient China.

1 Major Achievements in Dunhuang Art Research

Over the course of more than a century of Dunhuang studies, research on Dunhuang art has seen continuous development, particularly since the 1940s with the commencement of field investigations of the Dunhuang Caves. In the 1980s, fueled by China's reform and opening-up policies, Dunhuang art research transformed from a modest stream into a vast torrent, producing numerous significant achievements. These studies span a wide range of disciplines, including painting, sculpture, calligraphy, music, dance, textiles, and costumes, and have influenced related areas of society. This article focuses on the most prominent achievements, categorized into four main domains.

1.1 *Investigation and Publication of Dunhuang Art Materials*

The investigation of Dunhuang art began with Marc Aurel Stein (1862–1943), who visited the Mogao Caves in 1907. In his subsequent archaeological reports, two key: publications related to the Mogao Caves stand out: *Qianfo dong: Zhongguo xibu bianjing Dunhuang shikusi suohuo zhi gudai Fojiao huihua* 千佛洞: 中國西部邊境敦煌石窟寺所獲之古代佛教繪畫 (Bernard Quaritch Ltd, 1921) and *Si Tanyin Dunhuang suohuo huihua pin mulu* 斯坦因敦煌所獲繪畫品目錄 (The Trustees of the British Museum and of the Government of India, 1931). The latter provides a comprehensive catalogue of the silk

paintings and other artworks Stein collected. In 1908, French sinologist Paul Pelliot (1878–1945) arrived at the Mogao Caves. He assigned numbers to the caves, measured and photographed them, and transcribed various inscriptions. Pelliot also made extensive written records of most caves, marking the first comprehensive and detailed investigation of the Mogao Caves. His work culminated in publications such as *Dunhuang shiku tulu* 敦煌石窟圖錄[1] (Librairie Paul Geuthner, 1914) and *Boxihe Dunhuang shiku biji* 伯希和敦煌石窟筆記 (Gansu renmin chubanshe, 1993).[2] From August 1914 to January 1915, Russian archaeologist Sergey F. Oldenburg (1853–1934) spent six months in Dunhuang, recording the caves, taking photographs, and creating diagrams and survey maps. These documents remain an essential record of the early state of the Dunhuang Caves. The notes by Pelliot and records by Oldenburg were not widely published until the 1980s. Despite the significant changes in the appearance and interiors of the caves over the past century, their early documentation continues to serve as a valuable reference for modern research.

The most comprehensive and systematic records of the Dunhuang Caves are *Dunhuang Mogao ku neirong zonglu* 敦煌莫高窟內容總錄 (Wenwu chubanshe, 1982) and *Dunhuang Mogao ku gongyang ren tiji* 敦煌莫高窟供養人題記 (Wenwu chubanshe, 1982). The former was revised and expanded to include content from the Yulin Caves, the Western Thousand Buddha Caves, and the Five Temples, and reissued as *Dunhuang shiku neirong zonglu* 敦煌石窟內容總錄 (Wenwu chubanshe, 1996). This monumental work represents decades of meticulous investigation by generations of scholars at the Dunhuang Academy (敦煌研究院) and remains an indispensable reference for understanding and researching the caves.

Following China's reform and opening-up, the Dunhuang Academy published a series of large-scale compilations, including *Zhongguo shiku: Dunhuang Mogao ku* 中國石窟·敦煌莫高窟 (5 volumes, Wenwu chubanshe, 1999), *Dunhuang shiku yishu* 敦煌石窟藝術 (22 volumes, Jiangsu meishu chubanshe, 1994), and *Zhongguo Dunhuang bihua quanji* 中國敦煌壁畫全集 (11 volumes, Tianjin renmin meishu chubanshe, 2006). These works either provide overviews of the caves through representative highlights or offer detailed visual documentation of key caves, chronologically illustrating the artistic characteristics and achievements of Dunhuang murals across several historical periods. *Dunhuang shiku quanji* 敦煌石窟全集 (Shanghai renmin

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1   Paul Pelliot, *Les Grottes de Touen-Houang* (Paris: Librairie Paul Geuthner, 1914).

2   Boxihe 伯希和 [Paul Pelliot], *Boxihe Dunhuang shiku biji* 伯希和敦煌石窟筆記 (6 volumes). Published in French between 1980 and 1992. Translated into Chinese by Geng Sheng 耿昇 and Tang Jianbin 唐健賓 (Lanzhou: Gansu renmin chubanshe, 1993).

chubanshe and Shangwu yinshuguan Xianggang youxian gongsi, 1990–2001), published between the late 1990s and early 2000s, serves as an integrated monument of cave archaeology, art, and religious culture. This 26-volume series covers three major areas of studies: Buddhism, art, and society, representing the latest research achievements of its time.

Regarding artifacts unearthed from the Library Cave, *Seiiki bijutsu: Dai Ei hakubutsukan Stein collection* 西域美術：大英博物館スタイン・コレクション (Nihon Kōdansha, 1982) edited by Roderick Whitfield catalogues most of the central Asian and Dunhuang artifacts collected by Stein. The publication includes essays and image descriptions by Roderick Whitfield, showcasing British scholars' contributions to the study of Dunhuang art. Similarly, *Seiiki bijutsu: Gime bijutsukan Pelliot collection* 西域美術：ギメ美術館ペリオ．コレクション (Nihon Kōdansha, 1994) edited by Japanese and French scholars, features Dunhuang paintings from French collections and incorporates research on Dunhuang silk paintings by Japanese and French scholars.

1.2 *Research on the Content of Dunhuang Murals*

In the early 20th century, British and French scholars documented Dunhuang murals without being able to identify the chronological periods of the caves or understand the basic content of the paintings. This lack of contextual knowledge highlighted the need for more in-depth studies.

Japanese scholar Matsumoto Eiichi 松本榮一 (1900–1984) published a seminal work, *TonKōga kenkyū (zuzōhen)* 敦煌畫研究（圖像篇）(Nihon Tōhō Bunka Gakuin Tōkyō Kenkyūjo, 1937), examining over ten types of sutra illustrations (*Jingbian hua* 經變畫) found in the Dunhuang murals, alongside iconographic studies of depictions of Sakyamuni Buddha's life stories, Jataka tales, and other narrative illustrations. It also provided detailed analyses of specific images, including those of the Vairocana Buddha, the Tejaprabha Buddha with planetary deities, various mandalas from Esoteric Buddhism, and even imagery related to Nestorianism. Following Matsumoto, other Japanese scholars, such as Mizuno Seiichi 水野清一 (1905–1971), Nagahiro Toshio 長廣敏雄 (1905–1990), Hibino Takeo 日比野丈夫 (1914–2007), Higuchi Takayasu 樋口隆康 (1925–2013), and Akiyama Mitsukazu 秋山光和 (1925–2007), published a series of papers on Dunhuang cave studies, further advancing the field.

In 1944, the establishment of the Dunhuang Art Research Institute (敦煌藝術研究所) marked the beginning of formal archaeological and artistic research on Dunhuang, with the study of mural content becoming a primary focus. Although many findings from this period were not promptly published, by the 1980s, the general content of Dunhuang murals had been clarified and

the approximate construction date of each cave was determined, as detailed in *Dunhuang Mogao ku neirong zonglu*.

Since the 1980s, scholars such as Shi Weixiang 史葦湘 (1924–2000), He Shizhe 賀世哲 (1930–2011), Shi Pingting 施萍婷, Fan Jinshi 樊錦詩, Li Yongning 李永寧, Wang Huimin 王惠民, and Yin Guangming 殷光明 (1957–2013) have conducted in-depth studies on sutra illustrations, "narrative paintings" (*gushi hua* 故事畫), and "Buddhist historical paintings" (*Fojiao shiji hua* 佛教史跡 畫) in the Dunhuang murals, producing many significant findings. Notably, He Shizhe not only provided detailed interpretations of these murals but also explored broader themes of Buddhism, history, and culture reflected in the popular sutra illustrations, providing valuable references for related disciplines. His works, including *Dunhuang shiku lungao* 敦煌石窟論稿 (Gansu minzu chubanshe, 2004) and *Dunhuang tuxiang yanjiu: Shiliuguo Beichao juan* 敦煌 圖像研究一十六國北朝卷 (Gansu jiaoyu chubanshe, 2006), remain important contributions to iconographic analysis. Other notable publications include Shi Pingting's *Dunhuang xixue ji* 敦煌習學集 (Gansu minzu chubanshe, 2004), which investigated a range of sutra illustrations; Wang Huimin's *Dunhuang Fojiao tuxiang yanjiu* 敦煌佛教圖像研究 (Zhejiang daxue chubanshe, 2016), which expanded on traditional mural analyses and offered new interpretations of previously unpublished sutra illustrations; and Zhang Yuanlin's 張元 林 *Beichao Sui shiqi Dunhuang Fahua tuxiang yanjiu* 北朝一隋時期敦煌法華 圖像研究 (Gansu jiaoyu chubanshe, 2017), which delved deeply into *Fahua jing* 法華經-themed imagery, introducing innovative research methods.

Yin Guangming studied the Vairocana Buddha imagery associated with the *Huayan jing* 華嚴經; Zhang Xiaogang 張小剛 re-examined "Buddhist miracle paintings" (*Fojiao gantong hua* 佛教感通畫); and Liu Yongzeng 劉永增 undertook an in-depth exploration of esoteric Buddhist imagery. Collectively, these scholars have significantly expanded the scope of mural studies, fostering new developments in the research on Dunhuang iconography.

1.3   *Archaeological Research on the Dunhuang Caves*
Archaeological research on the Dunhuang caves involves two primary objectives: determining the construction periods of the caves and compiling comprehensive archaeological reports. Scholars such as Fan Jinshi, Ma Shichang 馬世長 (1939–2013), Guan Youhui 關友惠 (1932–2022), and Liu Yuquan 劉玉權 have conducted meticulous chronological studies, yielding significant findings on the periodization of caves from the Northern dynasties (386–534), the Sui dynasty, the early Tang dynasty, and the Western Xia period. Their work has established a scientific framework for the chronological periodization of the

Dunhuang caves and integrated archaeological methodologies into the study of Buddhist cave temples, providing valuable methodological references for Buddhist archaeological research in China.

Additionally, scholars like Pan Yushan 潘玉閃 have made notable achievements through excavation studies of the areas in front of the Mogao Caves, while Peng Jinzhang 彭金章 (1937–2017) conducted surveys of the northern caves of Mogao. Comprehensive investigations of the cliffs at Mogao have also been undertaken, shedding light on the construction history of the caves.

Given the vast number of Dunhuang caves and the broad scope of their content, the work of archaeological periodization remains ongoing. While the dates of the caves from the late Tang, Five Dynasties, and Northern Song to Yuan periods have largely been determined, further in-depth archaeological research is still needed to establish a scientifically rigorous chronological framework for these later periods.

In 2011, the first comprehensive archaeological report on the Mogao Caves, the first volume of *Dunhuang shiku quanji* 敦煌石窟全集, *Mogao ku di 266–275 ku kaogu baogao* 莫高窟第266－275窟考古報告 (Wenwu chubanshe, 2011), was published. This marked the first major milestone in what is seen as a monumental series of archaeological reports. According to the plan of the Dunhuang Academy, the complete archaeological documentation of the Dunhuang caves is expected to comprise 100 volumes.

1.4   *Art Research on Dunhuang Caves*
While the Dunhuang caves are themselves monumental works of art and research on them often falls broadly under the category of art studies, aspects such as the interpretation of content and chronological periodization are more accurately the domains of history, religious studies, and archaeology. Art research, by contrast, primarily focuses on art history, addressing questions related to architecture, sculpture, murals, and other artistic forms inherent to the caves.

During the early decades of Dunhuang studies, most researchers predominantly focused on deciphering the content and chronology of the caves. It was not until the establishment of the Dunhuang Art Research Institute in 1944 that scholars like Duan Wenjie 段文傑 (1917–2011) and Shi Weixiang began to conduct in-depth studies on the development of Dunhuang fine art, exploring the aesthetic features of Dunhuang art, the artistic characteristics of its murals and sculptures, and their connections to ancient historical and cultural contexts. The primary research findings, due to various reasons, were not published until the 1980s. Key collections include *Dunhuang shiku yishu*

lunji 敦煌石窟藝術論集 (Gansu renmin chubanshe, 1988) and *Dunhuang lishi yu Mogao ku yishu yanjiu* 敦煌歷史與莫高窟藝術研究 (Gansu jiaoyu chubanshe, 2002).

Other scholars made significant contributions to a range of specialized topics. Xiao Mo 蕭默 (1938–2013) and Sun Ruxian 孫儒僴 conducted studies on the architectural depictions in the Dunhuang murals and the architecture of the caves themselves, resulting in publications such as *Dunhuang jianzhu yanjiu* 敦煌建築研究 (Jixie gongye chubanshe, 2003) and *Dunhuang shiku baohu yu jianzhu* 敦煌石窟保護與建築 (Gansu renmin chubanshe, 2007). Guan Youhui studied mural patterns, Liu Yuquan investigated art from the Western Xia period, and Wan Gengyu 萬庚育 (1922–2012) and Li Qiqiong 李其琼 (1934–2012) explored mural painting techniques. Similarly, Wang Bomin 王伯敏 (1924–2013) and Zhao Shengliang 趙聲良 explored the landscape elements in the murals, all of which resulted in significant achievements.

In the late 20th and early 21st centuries, *Dunhuang shiku quanji* was published, several volumes of which focused on artistic research. These include *Dongwu huajuan* 動物畫卷 (1999), *Wudao huajuan* 舞蹈畫卷 (2001), *Jianzhu huajuan* 建築畫卷 (2001), *Shanshui huajuan* 山水畫卷 (2002), *Yinyue huajuan* 音樂畫卷 (2002), *Suxiang juan* 塑像卷 (2003), *Shiku jianzhu juan* 石窟建築卷 (2003), *Tu'an juan* 圖案卷 (2003), and *Fushi huajuan* 服飾畫卷 (2005). These volumes represent comprehensive summaries of different aspects of Dunhuang art, reflecting the latest research achievements of their time.

In the realm of costume studies, scholars such as Bao Mingxin 包銘新 have investigated mural imagery and related historical documents to gain insights into the structure of ancient garments, enabling the reconstruction and reproduction of historically accurate clothing. Particularly notable are their studies and reconstructions of the costumes of various ethnic groups, including the Tubo (Tibetan Empire, 633–842), Uyghur, Western Xia, and Mongols, which have yielded significant results. Additionally, scholars represented by Zhao Feng 趙豐 have approached this subject from the perspectives of textiles and costume history, conducting extensive research on artifacts unearthed along the Silk Road, especially in Xinjiang. Their work also included the reconstruction of several representative garments. Zhao Feng also conducted comprehensive studies of Dunhuang silk artifacts held in France, the United Kingdom, and various domestic collections in China, culminating in publications such as *Dunhuang sichou yishu quanji* (*Yingcang juan*) 敦煌絲綢藝術全集（英藏卷）(Donghua daxue chubanshe, 2007) and *Dunhuang sichou yishu quanji* (*Facang juan*) 敦煌絲綢藝術全集（法藏卷）(Donghua daxue chubanshe, 2010).

From the perspective of fine art history, the Dunhuang caves offer immense potential for systematic historical research, serving as a cultural legacy with a history that spans over a millennium and encompasses a rich array of content. Such studies not only clarify the developmental trajectory of Dunhuang art over a thousand years but also provide crucial supplements and references for the broader field of Chinese history of fine art. Since the beginning of the 21st century, scholars such as Zhao Shengliang have undertaken chronological studies on the fine art history of the Dunhuang caves. The first phase of this research culminated in the publication of *Dunhuang shiku meishu shi* (*Shiliuguo Beichao juan*) 敦煌石窟美術史（十六國北朝卷）(Gaodeng jiaoyu chubanshe, 2014). This work is noteworthy not only for its comprehensive exploration of the early development of Dunhuang's cave art but also for its comparative analysis of Indian and Central Asian Buddhist art, thereby revealing the origins and evolution of early artistic styles in the caves. This study also represents a departure from the traditional approach in fine art history texts, which typically present data in a strictly chronological narrative. Instead, it integrates historical narrative with thematic research. The book is divided into two volumes: the first focuses on historical narration, while the second delves into specialized studies. This structure ensures that critical issues in the historical account are supported by detailed research. Zhao Shengliang further contributed to the field with his *Dunhuang shiku yishu jianzhi* 敦煌石窟藝術簡史 (Zhongguo qingnian chubanshe, 2016), which offers a concise summary of the artistic development of the Dunhuang caves. This work serves as an overview of the history of Dunhuang cave art, providing readers with an accessible understanding of its evolution.

The protection of the Dunhuang Caves as a cultural heritage site has advanced significantly alongside the development of Dunhuang studies. Since the 1980s, the Dunhuang Academy has engaged in international collaborations aimed at protecting the cultural relics of the caves. This vast heritage site has posed numerous challenges for researchers, such as the collapse and erosion of cliff faces, the deterioration of murals, and human-induced damage. Over decades of research and exploration, the academy has established a comprehensive monitoring and early-warning system, transitioning from reactive emergency protection to preventive conservation. Various strategies to address these challenges, including those related to the impact of tourism, have been developed and summarized in numerous papers by Fan Jinshi.[3] There are also

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3 Fan Jinshi 樊錦詩, *Longshang xueren wencun* 隴上學人文存, vol. 3, *Fan Shijin juan* 樊錦詩卷, ed. Zhao Shengliang 趙聲良 (Lanzhou: Gansu renmin chubanshe, 2014).

notable achievements in conservation research, including the conservation of Cave 85 in particular, which not only addressed mural deterioration but also established standards for mural conservation. These initiatives have garnered recognition from UNESCO and have been promoted at other World Heritage sites. Since the turn of the century, the Dunhuang Academy has taken a leading role in advancing legislative protection with the enactment of the "Gansu sheng Dunhuang Mogao ku baohu tiaoli" 甘肅省敦煌莫高窟保護條例 in 2003. As the first, pioneering specialized legal framework for a cultural heritage site, it set a precedent in China. Additionally, in response to the increasing number of visitors, the academy conducted research on visitor carrying capacity, scientifically determining limits to ensure the preservation of the caves while accommodating sustainable tourism. This approach has become a model for other cultural heritage sites across the country. The results of decades of scientific conservation efforts at Dunhuang have also been widely applied to similar heritage sites nationwide. Currently, experts from the Dunhuang Academy actively participate in the protection of cultural heritage in more than ten provinces across China.

The digitization of cultural relics represents a critical integration of science and art. In the 1990s, efforts to digitize the artifacts of the Dunhuang caves began to take shape. Over the past two decades, digital data collection for more than 200 caves has been completed. The ultimate goal of the "Digital Dunhuang" project is to create a comprehensive digital archive of the caves. In the event of an unavoidable natural disaster that might damage the physical site, this digital archive would enable a complete restoration of the caves. Beyond preservation, the vast troves of digital data from the caves are invaluable for academic research, teaching, and dissemination through new media channels. As digitization efforts continue, the use of new media has greatly enhanced the global dissemination of Dunhuang art, bringing its cultural and artistic heritage to audiences around the world.

2   The Profound Impact of Dunhuang Art Research on Chinese Art History and Related Disciplines

Research on Dunhuang art has had far-reaching effects on disciplines such as Chinese architectural history, sculpture history, painting history, calligraphy history, and even the history of music, dance, and costumes. Many previously unresolved questions in these fields, due to the lack of physical or visual evidence, have been addressed thanks to the wealth of materials from Dunhuang. As a result, numerous gaps in the history of Chinese art have been filled. Over time, Dunhuang art has been progressively integrated into the framework of

Chinese art history research. According to Wang Bomin, Chinese fine art history works from the first half of the 20th century rarely mentioned Dunhuang fine art.[4] However, since the 1950s, Dunhuang cave art has gradually gained recognition in fine art history studies, with an increasing emphasis on its significance.

2.1 Influence on the Histories of Painting, Sculpture, Architecture, and Calligraphy

In ancient China, significant emphasis was placed on the study of painting history. Works on painting theory and history began to emerge as early as the Six Dynasties (222–589) period. The Tang dynasty saw the emergence of influential texts such as *Lidai minghua ji* 歷代名畫記 by Zhang Yanyuan 張彥遠 (Zhongzhou guji chubanshe, 2016) and *Tangchao minghua lu* 唐朝名畫錄 by Zhu Jingxuan 朱景玄 (Huangshan shushe, 2016). However, the study of painting history and art history as a contemporary discipline did not commence until the 1920s and 1930s. Early scholars, limited by insufficient resources, could only conduct cursory chronological reviews of painting development.

In the 1950s, driven by the needs of fine art history education, significant strides were made. Wang Xun 王遜 (1915–1969) of the Central Academy of Fine Arts (中央美術學院) compiled *Zhongguo meishu shi jiangyi* 中國美術史講義 (Renmin meishu chubanshe, 1956), and Li Yu 李浴 (1915–2018) of the Lu Xun Academy of Fine Arts (魯迅美術學院) authored *Zhongguo meishu shi gang* 中國美術史綱 (Renmin meishu chubanshe, 1957). Both works emphasized the importance of Dunhuang cave art and archaeological materials. Notably, Li Yu worked at the Dunhuang Art Research Institute from 1944 to 1945, conducting in-depth investigations of the content of the Dunhuang caves and inscriptions of donor figures found within. This firsthand experience provided him with unparalleled insights into Dunhuang art.

Following China's reform and opening-up, research in Chinese fine art history experienced remarkable growth. For example, Wang Bomin's *Zhongguo meishu tongshi* 中國美術通史 (Shandong jiaoyu chubanshe, 1996) made extensive use of Dunhuang cave materials to describe the development of fine art from the Northern and Southern Dynasties (420–589) through the Tang and Song (960–1279) periods. Similarly, *Zhongguo meishu shi* 中國美術史 (Qilu shushe, 2000), a large-scale work edited by Wang Zhaowen 王朝聞 (1909–2004), drew heavily on Dunhuang materials to substantiate its discussions of fine art history across various periods, including the Wei, Jin, Northern

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4 Wang Bomin 王伯敏, "Lishi de caiyun: Dunhuang shiku meishu zairu Zhonguo meishu shice de huigu" 歷史的彩暈—敦煌石窟美術載入中國美術史冊的回顧, in *Zhejiang yu Dunhuang xue* 浙江與敦煌學 (Hangzhou: Zhejiang guji chubanshe, 2004).

and Southern Dynasties, Sui, Tang, Five Dynasties, and Song eras, highlighting the irreplaceable role of Dunhuang art in Chinese fine art history. Art historian Jin Weinuo 金維諾 (1924–2018) began publishing a series of research papers on Dunhuang fine art as early as the 1950s, contributing significantly to the field. His later work, *Zhongguo zongjiao meishu shi* 中國宗教美術史 (Jiangxi meishu chubanshe, 1995), provided a systematic analysis of religious fine art, including Dunhuang art.

With further advancements in Dunhuang art research, Zhao Shengliang and others compiled specialized art history works such as *Dunhuang shiku meishu shi* 敦煌石窟美術史, enriching the scholarly understanding of this field. Meanwhile, in the field of Chinese architectural history, Xiao Mo 蕭默's *Dunhuang jianzhu yanjiu* 敦煌建築研究 (Wenwu chubanshe, 1989) was one of the earliest systematic studies of Dunhuang architecture. The findings from this research later supported his completion of *Zhongguo jianzhu yishu shi* 中國建築藝術史 (Wenwu chubanshe, 1999). The realm of Chinese calligraphy history also saw significant progress. Jao Tsung-i 饒宗頤 (1917–2018) published the *TonKō shohō sōkan* 敦煌書法叢刊 (Nihon Nigensha, 1980) in Japan, a 29-volume series that systematically curated distinctive calligraphic works from Dunhuang manuscripts. This collection highlighted the calligraphic value of manuscripts unearthed in the Library Cave. Subsequently, numerous studies and anthologies followed, including Dunhuang Academy's *Dunhuang shufa ku* 敦煌書法庫 (1–4 volumes, Gansu renmin meishu chubanshe, 1994). Furthermore, the seven-volume *Zhongguo shufa shi* 中國書法史 (Jiangsu jiaoyu chubanshe, 2002) included a dedicated section in the Wei, Jin, and Northern and Southern Dynasties volume analyzing the unique characteristics and styles of Dunhuang calligraphy. Dunhuang calligraphy has not only garnered widespread attention within the academic community but has also inspired an increasing number of calligraphy enthusiasts to study and practice the distinctive style of Dunhuang manuscripts.

2.2   *Contributions to Music History, Dance History, and Costume History*
In addition to its pivotal role in the study of painting, sculpture, architecture, and calligraphy, Dunhuang art has made significant contributions to the fields of Chinese music history, dance history, and costume history. Since the 1980s, the extensive utilization of Dunhuang materials has greatly enriched research in these areas, offering a more complete understanding of ancient Chinese art and culture.

Music historian Yin Falu 陰法魯 (1915–2002) was among the earliest scholars to recognize the profound value of musical and dance imagery in Dunhuang's Tang dynasty murals for the study of Chinese music history. He published

seminal papers, including "Dunhuang yuewu ziliao de lishi beijing" 敦煌樂舞資料的歷史背景 (*Zhongguo shi yanjiu* 中國史研究, no. 3, 1980) and "Cong Dunhuang bihua lun Tangdai de yinyue he wudao" 從敦煌壁畫論唐代的音樂和舞蹈 (*Wenwu cankao ziliao* 文物參考資料, no. 4, 1951).[5] In *Zhongguo yinyue shilüe* 中國音樂史略 (Renmin yinyue chubanshe, 2001), Wu Zhao 吳釗 and Liu Dongsheng 劉東升 also emphasized the importance of Dunhuang murals and musical materials discovered in the Library Cave. Their research on the content of *sujiang* 俗講 (popular preaching) in Dunhuang manuscripts led to an in-depth discussion of the relationship between temple *sujiang* performances, *sanyue* 散樂 (acrobatics and drama), and the broader historical development of music during the Six Dynasties period.

Zheng Ruzhong 鄭汝中 (1932–2022) conducted a comprehensive investigation of musical instruments depicted in Dunhuang murals and subsequently published *Dunhuang shiku quanji: yinyue huajuan* 敦煌石窟全集・音樂畫卷 and *Dunhuang bihua yuewu yanjiu* 敦煌壁畫樂舞研究 (Gansu Jiaoyu Chubanshe, 2002). His work represented a major contribution to the study of traditional Chinese music and had a profound influence on later music history research. In the field of dance history, Wang Kefen 王克芬 (1927–2018) conducted an extensive study of dance imagery in Dunhuang murals, culminating in works such as *Dunhuang shiku quanji: wudao huajuan* 敦煌石窟全集・舞蹈畫卷 and *Wulun* 舞論 (Gansu Jiaoyu Chubanshe, 2009). Her research explored dance imagery in Dunhuang murals and the dance notations discovered in the Library Cave, greatly expanding the scope of Chinese dance history.

The study of ancient Chinese costumes is a key area in traditional cultural research. Shen Congwen 沈從文 (1902–1988) authored the seminal work *Zhongguo gudai fushi yanjiu* 中國古代服飾研究 (Shangwu yinshuguan, 1981),[6] which stands as a cornerstone in costume history research. This book extensively utilized archaeological findings and cave materials, including a substantial amount of evidence from Dunhuang murals. In some cases, Dunhuang materials were directly employed to illustrate the costume types of specific eras, such as Northern Dynasties murals depicting armored cavalry and foot soldiers, Tang dynasty military attire, and women's clothing. These examples highlight the irreplaceable value of Dunhuang murals in Chinese costume history. Following Shen's work, additional publications on Chinese costume history emerged. For instance, Huang Nengfu 黃能馥

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5 Yin Falu 陰法魯, *Yin Falu xueshu lunwen ji* 陰法魯學術論文集 (Beijing: Zhonghua shuju, 2008).

6 Shen Congwen 沈從文, *Zhongguo gudai fushi yanjiu* 中國古代服飾研究 (Hong Kong: Shangwu yinshuguan, 1981).

(1927–2018) and Chen Juanjuan 陳娟娟 (1929–1991) co-authored *Zhongguo fushi shi* 中國服飾史 (China lüyou chubanshe, 2001), incorporating a wealth of Dunhuang mural materials, particularly for periods spanning the Northern and Southern dynasties through the Tang and Song periods. In-depth investigations of Dunhuang murals have significantly advanced research on Chinese textiles and costumes, exerting a strong influence on both academic study and educational practices in this field.

Since the 21st century, academic institutions such as Donghua University College of Fashion and Art Design (東華大學服裝藝術學院), Tsinghua University Academy of Arts and Design (清華大學美術學院), and Beijing Institute of Fashion Technology (北京服裝學院) have led extensive research on Dunhuang textiles and costumes. In 2002, Donghua University's College of Fashion and Art Design began collaborating with the Dunhuang Academy, advancing teaching and research in Chinese costume history. Under the leadership of scholars such as Bao Mingxin, numerous master's and doctoral theses focusing on Dunhuang mural costumes have been completed, with notable achievements in the study of minority ethnic costumes. These efforts have produced a series of academic papers and the successful reproduction of ancient minority ethnic garments for teaching and exhibition purposes.

In 2008, the China Dunhuang-Turpan Society (中國敦煌吐魯番學會) established a Specilized Committee on Textiles and Costume at Donghua University. In 2018, the Beijing Institute of Fashion Technology collaborated with the Dunhuang Academy to establish the Dunhuang Costume Culture Research and Innovative Design Center (敦煌服飾文化研究暨創新設計中心). This center has dual aims: to utilize Dunhuang materials for research on the history of ancient Chinese costumes and to innovate in the design of contemporary garments inspired by this tradition. Recent years have seen the publication of works such as *Silu zhi guang: 2020 Dunhuang fushi wenhua lunwenji* 絲路之光: 2020敦煌服飾文化論文集 (Zhongguo fangzhi chubanshe, 2020) and *Zhongguo chuantong fushi wenhua xilie congshu* 中國傳統服飾文化系列叢書 by the same publisher. These publications have garnered widespread attention in the fashion industry, showcasing the unique charm of Dunhuang art and its enduring influence on both academic research and modern design.

2.3   *Advancing the Development of Buddhist Archaeology and Iconography*

In addition to its direct contributions to traditional art disciplines, the study of Dunhuang caves has significantly propelled the development of two specialized fields: Buddhist archaeology and Buddhist iconography. Traditional

archaeology has primarily focused on field excavations of ancient ruins and tombs. However, ancient cultural sites such as cave temples presented new challenges beyond the scope of conventional archaeological methods.

In the early 1960s, Su Bai 宿白 (1922–2018) from Peking University pioneered Buddhist cave archaeology, focusing on the Dunhuang caves. He led a team of archaeologists in employing archaeological typology alongside analyses of Buddhist iconography and related historical and religious contexts. This approach enabled the identification and chronological classification of Dunhuang cave sites. Su Bai's views on cave archaeology, or Buddhist archaeology, were later consolidated in his seminal work *Zhongguo shiku si yanjiu* 中國石窟寺研究 (Wenwu chubanshe, 1996), which remains a cornerstone in the field.

Following China's reform and opening-up period, scholars at the Dunhuang Academy built upon Su Bai's methodologies, publishing significant findings on the chronological classification of caves from the Northern dynasties, Sui, and Tang periods at Mogao caves. A landmark achievement was the 2011 publication of the first archaeological report of the Dunhuang caves, *Dunhuang shiku quanji: Mogao ku di 266–275 ku kaogu baogao* 敦煌石窟全集·莫高窟第 266–275窟考古報告 (Volume 1). This work exemplified the application of Su Bai's archaeological principles to the study of the Dunhuang caves.

Beyond Dunhuang, the influence of Su Bai's cave archaeological approach has extended to the study of other major Buddhist cave sites, such as the Kucha caves, Yungang caves, and Longmen caves. Since the 1980s, research on the chronological classification and archaeological reporting of these sites has largely adhered to Su Bai's foundational ideas. As a result, cave archaeology, or Buddhist archaeology, has gradually evolved into a significant subfield within the broader discipline of archaeology.

The systematic application of iconography in the study of ancient Chinese art is a relatively recent development, likely gaining prominence in the 21st century. However, in the context of Dunhuang Buddhist art, iconographic research began much earlier. In 1937, Japanese scholar Matsumoto Eiichi published *Dunhuang hua yanjiu* 敦煌畫研究, the first systematic analysis of Dunhuang imagery.

Throughout the latter half of the 20th century, both domestic and international scholars made persistent efforts to explore the iconographic content of Dunhuang murals. Among the most notable contributors are He Shizhe, Shi Pingting, Sun Xiushen 孫修身, and Wang Huimin. Their work provided detailed interpretations of various aspects of Dunhuang murals, including sutra illustrations, narrative paintings, and "Buddhist historical paintings." Particularly,

He Shizhe's seminal work *Dunhuang tuxiang yanjiu: Shiliuguo Beichao juan* 敦煌圖像研究—十六國北朝卷 not only examined the Buddhist content of the murals but also explored the historical and religious ideas underlying the production of related imagery during different periods. The extraordinary richness of Dunhuang murals highlights the immense potential of iconography as a research tool. Consequently, iconographic analysis has become a foundational method for studying Buddhist murals and sculptures across China.

Two factors have contributed to the rise of iconography in Chinese art research. First, the translation and dissemination of works by influential Western scholars such as Erwin Panofsky (1892–1968) and Ernst Gombrich (1909–2001) have introduced Chinese scholars to systematic approaches for analyzing visual imagery. Second, the wealth of findings from Dunhuang iconographic studies has demonstrated the method's efficacy in addressing complex questions within Buddhist art. This success has encouraged more scholars to adopt iconographic methods in their research.

That said, some researchers have approached iconography rather superficially, without fully grasping its theoretical underpinnings. Moreover, Panofsky's iconographic framework, originally developed for Western art, does not always align perfectly with the study of Chinese Buddhist art. Nonetheless, it is undeniable that iconography has become an indispensable tool for understanding ancient Buddhist art. On a broader level, the application of iconography has deepened traditional art-archaeological studies, revealing that artistic imagery is not merely a matter of form but is also deeply connected to religion, culture, historical contexts, and societal ideologies.

3 Promoting Contemporary Artistic Innovation through Dunhuang Art

Artistic innovation is deeply rooted in cultural tradition, and without this foundation, innovation lacks substance. Artists have long recognized this essential connection. Between 1941 and 1943, Zhang Daqian 張大千 (1899–1983) visited Dunhuang to copy murals, immersing himself in its artistic legacy. This experience profoundly influenced his works, as he began freely incorporating the grandeur and vibrant colors of Dunhuang murals into his landscapes and floral-bird paintings, demonstrating a masterful integration of tradition and innovation.

Chang Shuhong 常書鴻 (1904–1994), recognizing the unique value of Dunhuang art, understood its distinctiveness from the artistic traditions of the

Ming and Qing dynasties and its critical role in the broader history of Chinese art. Early collaborators who worked extensively with Chang in Dunhuang, such as Pan Jiezi 潘絜兹 (1915–2002) and Dong Xiwen 董希文 (1914–1973), also achieved notable success in their artistic endeavors. Pan Jiezi, deeply influenced by his meticulous copying of Dunhuang murals, excelled in *gongbi* 工筆 (fine-line) figure painting, skillfully translating the brush techniques and color palettes of Dunhuang into his art. His painting "Shiku yishu de chuangzao zhe" 石窟藝術的創造者 (*gongbi* on paper, 110 × 80 cm, 1954) is a direct reflection of his personal experience at the Dunhuang caves. Dong Xiwen, in his oil paintings, often demonstrated a distinctively Eastern sense of spatial composition. His monumental piece "Kaiguo dadian" 開國大典 (oil on canvas, 230 × 405 cm, 1953) bears a clear influence from Dunhuang art, evident in the composition of figures in the foreground, spatial design in the background, and the interplay of light and color.

Chang Shuhong's daughter, Chang Shana 常沙娜, who learned painting at Dunhuang during her youth, incorporated elements of Dunhuang murals into her design work. During the 1950s, she contributed to the interior decoration of prominent buildings such as the Great Hall of the People (人民大會堂) and the Cultural Palace of Nationalities (民族文化宮), exemplify a distinctive artistic style that seamlessly blends traditional cultural motifs with a strong sense of national identity.

Sculptors who spent extended periods working at Dunhuang, such as Sun Jiyuan 孫紀元 and He E 何鄂, also showed significant advantages in their creations, skillfully integrating the artistic traditions of Dunhuang into their works. Sun Jiyuan's "Rui xue" 瑞雪 (marble, 30 × 30 × 82 cm, 1962) and He E's "Huanghe muqin" 黃河母親 (granite, 1986) are exemplary works that embody both a profound respect for traditional spirit and a sensitivity to contemporary artistic sensibilities.

Dunhuang dance imagery has been a significant source of inspiration for contemporary music and dance. In the early 1980s, the Gansu Provincial Song and Dance Troupe (甘肅省歌舞團) created the dance drama "Silu huayu" 絲路花雨, which achieved tremendous success. Drawing on earlier research into Dunhuang music and dance, this production recreated stories of cultural exchange along the Silk Road during the Tang dynasty, bringing to life the imagery of "flying apsaras" (*Feitian jiyue* 飛天伎樂), "reversed pipa dance" (*Fantan pipa wu* 反彈琵琶舞), and other iconic scenes from Dunhuang murals. The success of "Silu huayu" not only showcased the unique charm of Dunhuang art but also sparked a broader movement to revitalize traditional Chinese performing arts. Inspired by its achievements, other works based on traditional culture

soon followed, such as "Fang Tang yuewu" 仿唐樂舞 by the Shaanxi Provincial Song and Dance Theatre (陝西省歌舞劇院) in 1982, "Xinbian nichang yuyi wu" 新編霓裳羽衣舞, "Bianzhong wu" 編鐘舞, and "Qiuzi wu" 龜茲舞.

Dancer Gao Jinrong 高金榮 further systematized the study of Dunhuang dance by developing a Dunhuang Dance Curriculum (*Dunhuang wu jiaocheng* 敦煌舞教程), which analyzed its principles and techniques. This work paved the way for famous programs such as "Qianshou Guanyin" 千手觀音, ensuring that Dunhuang-inspired dance would continue to captivate audiences and leave a lasting cultural imprint.

The rich content and artistic materials found in the Dunhuang caves serve as an invaluable resource for contemporary artistic creation. These cultural elements have been widely applied in various forms of contemporary culture and art, including brand logos, craft design, fashion design, digital publishing, animation, film, and documentaries, inspiring countless artists both in China and abroad.

With the advancement of internet technology and digital innovation, cutting-edge technologies such as immersive new media and dome films have provided novel ways to experience Dunhuang's cultural heritage. As early as the 1990s, the Dunhuang Academy initiated the Digital Dunhuang (*Shuzi Dunhuang* 數字敦煌) project, aiming to use digital technology for the holographic preservation of the Dunhuang caves. This effort ensured the permanent safeguarding of this invaluable world cultural heritage. Building upon this vast repository of data, the high-definition digital presentation of Dunhuang culture has become a key focus in the 21st century. Digital technology has been applied to numerous aspects of cultural and creative development related to Dunhuang. For instance, the Dunhuang Mogao Caves Digital Exhibition Center (敦煌莫高窟數字展示中心) created "Qiannian Mogao" 千年莫高, a 4K ultra-high-definition widescreen thematic film designed to provide visitors with an in-depth understanding of the historical background of the Mogao Caves. Similarly, "Menghuan fogong" 夢幻佛宮, the world's first 8K dome film for cultural heritage, uses dome projection to deliver a stunning virtual tour of eight vividly reconstructed caves. This immersive technology allows visitors to feel as though they are physically present in the caves.

In recent years, collaborations between the Dunhuang Academy and technology giants such as Tencent and Huawei have further expanded the reach of Dunhuang art. Initiatives like "Cloud Tour Dunhuang" (*Yunyou Dunhuang* 雲遊敦煌) and "Ultra-Sensory Imaging" (*Chaoganzhi tuxiang* 超感知圖像) utilize digital platforms and mobile technologies to make Dunhuang's treasures accessible beyond the physical caves, enabling visitors to "see cave artifacts outside the caves."

The multifaceted achievements of Dunhuang research, particularly the Digital Dunhuang project, have supported the dissemination of Dunhuang art across new media platforms. These innovations have deepened public appreciation of Dunhuang's legacy, playing an increasingly crucial role in telling China's stories and preserving and prompting traditional culture.

4   Conclusion

To evaluate the contributions of a discipline, it is essential to consider not only its academic achievements but also its broader impact on society and the times in which it exists. The significance of Dunhuang art research lies not only in its advancement of related disciplines, such as art history, but also in its profound influence on the cultural and artistic development of society as a whole. Dunhuang art stands as a concentrated representation of traditional Chinese art, and its study has fostered enduring positive effects in art education and artistic creation.

Particularly since China's reform and opening-up, Dunhuang art has sparked a cultural renaissance, inspiring diverse creative works in painting, music, dance, and fashion design. This vibrant revival is rooted in a century of dedicated scholarship exploring the textual, historical, and stylistic dimensions of Dunhuang art. In the context of the new era of socialism with Chinese characteristics and the Belt and Road Initiative, Dunhuang art studies carry an even greater responsibility. They play a crucial role in the inheritance, innovation, and promotion of traditional Chinese culture and art, fostering a deeper understanding and appreciation across society. By building on this foundation, Dunhuang art studies can inspire more artists to create new works that embody the Chinese spirit and characteristics, enriching the cultural landscape of modern society.

Translated by Epperly Zhang