Tian-jing

Hunan skywell compounds in modern China

by
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Author's Declaration

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required revision final revisions, as accepted by examiners.

I understand that my thesis may be made electronically available to the public.

Abstract

Tian-jing, or skywell, is a small courtyard that is both an interior and an exterior space. It is an interstice which both disconnects and joins the surrounding chambers. The opening acts as a conduit for the heavens within the introspective Chinese compounds. In plan, courtyards supplant the use of corridors; repeated use of Tian-jings could bridge together hundreds or thousands of rooms within one outer wall.

My undergraduate architecture studies in Canada highlight the narrative of building architecture, and the delivery of designs in definite drawings; we learn to compose a building from abstract perimeters, and develop a language to narrate the promised vision. Canada is a nation with relatively new architectural history; architects deal with design issues with code or programming with control and order. In practice, we design for the object architecture or the urban master plan. In comparison, the Tian-jing compounds in Hunan, China had experienced radical societal shifts in the last hundred years. Although many Tian-jing compounds did not survive the Land Reform Movement and the Cultural Revolution, some persevered through forbearance, and adapted into the new age. Old Tian-jing compounds that belonged to a single family for multiple generations became divided, and the new users made their own modifications onto the old architecture.

The ambition of this research aims to remove the temporal obstacles of history and relinquish the cultural and architectural value of a lost architectonic typology. Moreover, this research looks at architecture built in a pre-existing environment of embodied knowledge. I investigated and documented eight different Tian-jing complexes in varying scales and states of preservation in Hunan, China. Through a series of photographs and journals, I analyse my field observations and reflect on the Tian-jings and its associated buildings.

My journey through the eight case studies finds architecture in the intermediate state between the building and the city. Instead of a singular structure stealing the spotlight, groups of buildings interact and blend together, creating an expansive tapestry weaving with knits and holes. Tian-jing compounds present architecture not as objects but a piece of nature; it is an institution of trees and clearings within a larger matrix of forests.

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This thesis is dedicated to my grandparents,
Kaixiang and Xianyuan Tan, and my
grandmama Yulan Luo

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Preface: *Tian-jing architecture through a looking glass*

The first recognized architect of the western world—Filippo Brunelleschi—set the example for the profession on how to lead the building process. Brunelleschi was the only visionary who could see the completed dome of the Florence Cathedral before the first brick was laid down; the architect takes full control of the construction process, and he could clearly define his designs in plans, sections and elevations. His example shows that we, architects, stand out from the crowd and can somehow make the world into a better place with our singular unique design.

However, unlike the freedom of design context in school or the generous spatial context of the continent, most building context does not begin with the luxury of a blank page nor an endless open CAD sheet. North America—its abundances of space—has allowed a whole generation of modern architects to work on virgin land to produce their ideal building. Since the second year at Waterloo School of Architecture, I attempted to find a new perspective in the design industry by working for European architects, where designers must react to restrictions within a much older environment. Yet, in my numerous co-op experiences at some of the well-respected firms in the industry across the globe, I found myself continuing to design for the object building. The interns, many of who never been on site, were asked to cut hundreds of foam models for a project. Then the principle would post-rationalize a favourable narrative for the favourite models into whatever context they were in. Oftentimes, unfavourable contextual buildings were often photoshoped out of the money shot rendering to bring attention to the design subject. Perhaps the secret of the trade is to sell the ideal object, such is my conclusion from working for six different firms on three continents.

For the last studio design project in the spring of 2018, the class was offered a great deal of freedom to deliver a spa resort in volcanic hot spring regions of Hokkaido, Japan. Due to the similarity of site isolation and topographic context, I, along with many of my classmates, designed their complex in echo of their first studio design project (an artist's retreat) in design parti. I saw that apart from the complexity of the construction and programming, my initial impressions on the object

architecture permeated throughout my five-year education. At the same time, I also received news that my grandfather had a stroke and fallen into severe Alzheimer's, and I began to frequently telephone my grandmother in China about his conditions. In one of our conversations, she told me about her childhood living in a gargantuan compound of hundreds of chambers connected with a hundred and eight Tian-jings. I became so absorbed in reimagining this mythical architecture that I integrated a duo courtyard design for spa resort project.

In August 2018, I returned to China, expecting to see my grandfather for the last time, and hoping to take a glimpse of the Tian-jing architecture of Hunan. However, the apparent destruction of the hundred and eight Tian-jings during the tumultuous movements of China's recent history thwarted my plans to see the said compound. I lamented at the thought of losing my grandfather, and the architecture that raised their generation; I wanted to learn more about these architectures to preserve the fleetting memories of my grandparents. Despite encountering the end of a thread, I decided to research Tian-jing courtyards for my master's thesis, for both personal discovery and academic perspective on eastern architecture. In this research, my primary interest lay in the Tian-jings, or the voids between buildings, rather than the object of the architecture.

In April 2019, I embarked on a journey with my father to search for Tian-jing compounds in my ancestral province—Hunan, China. Throughout my investigations, I found myself constantly lost within the labyrinth of courtyards and buildings, where I could walk within a whole neighbourhood without seeing the horizon. The process of going through the matrix buildings and openings exposed me to a layered urban environments built through the ages, sometimes without standard dimensions dictated by licensed professionals; the interweaving of solid volumes and interstitial spaces created an environment that activates the overall architecture. My journal focuses on observations made close to the ground, where I abandon many of the standard analytical tools of a western architect; I try to observe from a humble pilgrim's perspective to understand an urban system with its own set of embodied knowledge.

Tian: sky

Jing: well

Figure A.1 *"Tian-jing"*

Introduction

The great majority of Chinese provinces experience predominately south-easterly winds with humid-warm summers and dry-cold winters[1]. In general, traditional Chinese architecture begins with an initial building cardinally oriented toward the south or east for the wind and the sun. Subsequent buildings are built adjacent on the two sides to form a courtyard, either enclosed by a wall or an additional building[2]. Typical Chinese architectural and urban planning share a similar pattern of development to the expansion of the basic household; the plan expands outwards symmetrically from a central point or building[3]. The spaces between the buildings are not only the voids, but also the metaphysical and social extension of the interior. Moreover, the buildings are not independent of each other, but are separated and connected by the courtyards.

Vernacular Tian-jing compounds in south-eastern China

The Tian-jing compound typology in south-eastern China is the outcome of decades and centuries of kinship capital accumulation. The architectonic typology is a citadel type architecture which contains many urban functions that permits its residents to be sheltered for the bulk of day- and night-time activities[4]. The system of chambers contains various public and private functions under one large roof. The interstitial spaces between chambers are open courtyards with *Tian(sky)-jings(wells)* for air circulation and natural lighting. In plan, courtyards supplant the use of corridors; repeated use of Tian-jings could bridge together hundreds or thousands of rooms within one outer wall. The large roofs provide extensive sun shade and rainwater drainage, as south-east China experiences long periods of stormy summer seasons. The central courtyard spaces allow for access to the exterior within a colossal building block, and the sunken portion of the courtyards also functions as greywater drainage systems during continuous rain seasons[5].

The proximal arrangement of open-and-closed spaces gives the residents adequate public and private space for work, leisure, and reposure within a relatively dense urban setting. Large families or institutions living in these conditions operate under specific filial or social responsibilities in

1 Shang-Chia Chiou and Ramesh Krishnamurti, "The Grammatical Basis of Chinese Traditional Architecture," Languages of Design 3, no. 95 (December, 1995), 5-31.

2 Ronald G. Knapp, Kai-Yin Lo and China Institute in America, House, Home, Family : Living and being Chinese (Honolulu : New York: University of Hawaii Press ; China Institute in America, 2005)., 56

3 ibid, 14

4 M. Jenks, World Cities and Urban Form: Fragmented, Polycentric, Sustainable? (London; New York: Routledge, 2008).

5 Hunan Residential Architecture and Urban Planning Board, Hunan Traditional Residence, 1st ed. (Beijing: China Architecture & Building Press 中国建筑工业出版社, 2017).

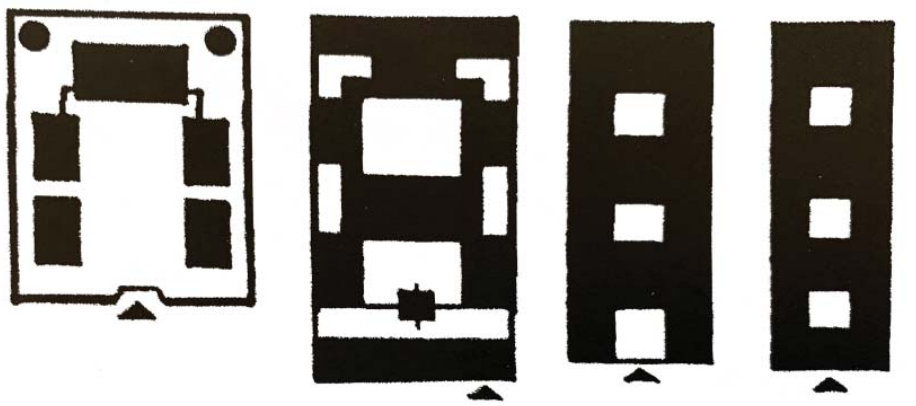


Figure A.2 *Differentiation of compounds from different provinces with varying courtyard sizes. From left to right: Jilin, Beijing, Zhejiang, Guangdong. Hunan Tian-jing compounds stands between Zhejiang and Guangdong. Image from House, Home, Family, p.47*

which members from different generations explicitly and implicitly take care of each other. However, the institution-like compounds that serviced the old families also destined its suitability for large communes in the communist era. The authorities seized the vast majority of vernacular manses from landlords and adapted to public communes from the Great Leap Forward era until their eventual abandonment or demolition during the Cultural Revolution. Poor management of the property and resources resulted in negligence in maintenance, disappearance of vernacular craftsmanship, and eventual obsolescence of this typology.

A short history of Tian-jing compounds in modern Hunan

Since the beginning of communist China in 1949, incalculable historical compounds were torn down and scavenged for firewood or reclaimed as materials for individual homes for the advancement of the proletarian revolution. The pursuit of institutional canteens and public communes since the Great Leap Forward and the subsequent Cultural Revolution resulted in institutional abandonment of "old" houses in the countryside throughout China, and especially in Mao's home province, Hunan. During this time of tumultuous cultural and social shift, institutional communism advocated that personal identity is no longer defined by one's ancestry or a place. The public saw personal property as corruption; they designated all private goods as public property for the common good[6]. For a time, personal identity was scorned upon, and was enforced into a singular collective identity. Whether or not welcome, the enforced construction of common identity extended from the way people organized their daily work and life, to how the Tian-jing compounds

6 Jicai Feng, Ten Years of Madness: Oral Histories of China's Cultural Revolution (San Francisco: China Books & Periodicals, 1996).

became expropriated for the service of the public. The long coveted Tian-jing estates in Hunan saw short-lived success as communal free-for-all canteens, but the poor maintenance of public spaces and subsequent famine painted the sites with memories of mass hunger, poverty, and a common bitterness. In the downfall of the public communes and collective family, and be gone with the great houses.

Contemporary rural context of the Tian-jing compounds in Hunan

In the current rural Hunan socio-economic climate, small-scale agriculture is not a dependable wealth generator for the individual rural families. After the dissolution of Production brigades, the authorities allotted families with individual plots of lands and housing units. However, the agriculture industry is being rapidly consolidated into the grips of the larger state operated companies, and these operations are subsided by the state. Higher standards of living and fluctuating economy are pressuring the average farmer in Hunan to balance out the time and cost of small-scale cattle raising and farming against mega institutions in the current market. Many young people have left the villages and fields to seek faster-fortunes in the cities. Those left behind are mostly older or youth generation that have little means to maintain the old homes. Especially for Tian-jing compounds that have been labeled as historic protection artifacts. The residents themselves may not have the knowledge nor the funds to restore the buildings to its former glory, but also do not want to lose the rights to their ancestral land. Many enter a dilemma summarized by the Chinese idiom of "useless to keep, yet a pity to relinquish."

Since the economic reform in early 1980s, many compounds have been divided to form individual household units[7]. Some of those that have earned money choose to rebuild newer houses over their old lots within the compound; the result is a fragmented Tian-jing architecture that no longer retains its original continuity throughout its fabric. The most desirable compromise for residents to see is for the government to come forth with an offer to trade the built floor area for cash or more valuable real estate elsewhere. Many people in the country experienced rags to riches stories through government compensation for land recollection. This compensation phenomenon gives residents more incentives to build over heritage architecture besides the desire for modern living standards.

7 Ezra F. Vogel, *Deng Xiaoping and the Transformation of China* (Cambridge, MA: Belknap Press; An Imprint of Harvard University Press, 2011).

Research Motivation

I learned through the words of my grandmother that there was once a great house that prospered in Yutang County, Hunan. The collection of buildings once held a hundred and eight sky-wells, with large and small courtyards and countless chambers. The site was selected to be converted to a public commune and public canteen in 1958, and was subsequently demolished in the early years of the Cultural Revolution.

Yutang County sits approximately 50km from Mao's birthplace, Shaoshan County, and about 25km from Dongshan middle school in city of Xiangxiang, where Mao Zedong went for school in 1909. Many pupils who attended the private academy during Mao's youth came from prosperous large families. Various bibliographic sources indicate that Mao expressed dislike for the school; it is possible to speculate that Mao, a pupil from modest peasant backgrounds, was subject to ridicule and abuse from his wealthier colleagues[8]. These experiences contributed to the development of Mao Zedong's antagonism for the bourgeois class, which resulted in the communist movement against the landlords and the subsequent destruction of many Tian-jing compounds.

This site currently shows few traces that indicate such a house of colossal magnitude ever existed. My grandmother, who spent a few years of her youth in this compound, could only explain her memories of the spaces with a limited architectural language. My grandfather, who was a self-taught civil engineer, had lost most of his memory due to Alzhiemer's, and could no longer describe to me the times that he went to visit my grandmother in her childhood home when they were courting. Like my grandparents, the old Tian-jing compounds are fading away. Such architecture contains the memories of my grandparents and the ancestors that I did not have the opportunity to meet. I wish to learn more about these buildings and spaces to commemorate the people I love, and understand the way they once lived. The ambition of this research aims to remove the temporal obstacles of history and relinquish the cultural and architectural value of a lost architectonic typology.

8 Edward E. Rice, Mao's Way (Berkeley, Los Angeles, London: Berkeley, University of California Press, 1974).

April 27, 2019 Travel Observations

I set out on this case study trip with my father, Tan Yeping, a professional civil engineer and an Associate Professor of Civil Engineering from Shenzhen University, China. He accompanied me on some of the research trips both as an interpreter for the local Hunanese dialect and also to give me opinion on the viability of architectural structures from an engineering perspective.

We left Shenzhen for Hunan on the morning of the April the 27th. An overcast blanket filled the sky, and foreshadowed a brewing storm. As we passed the region of Qingyuan, a large region of hilly land that barricaded Guangdong from central China for centuries, the topography became more densely mountainous. Although the national expressway wound its way across the country, each individual province hosted its own toll gates for separate provincial management and maintenance of the highway. The surrounding mountain ranges embraced the narrow valley the expressway passed through, and the towering peaks hid behind the brewing storm clouds.[i]

We passed the city of Yongzhou and approached Qiyang on the new cross-provincial G72 Quannan expressway that was completed in 2015. We crossed the Xiang River (湘江), the namesake of the province, and exited the expressway onto a local county road that ran parallel to the highway. In China, the vast majority of contemporary county, provincial, and national roads followed historic foot passages that had carried travellers and merchants for hundreds of years. A linear village sprawled out along the county road, but unlike the typical roadside villages populated with houses sporting different façade sizes and styles, the two rows of houses featured matching grey brick façades and aligning black commercial sign boards above the doorways. All the buildings in the village looked new but sparsely occupied—it appeared that the local government had been encouraging cohesive aesthetics in the local building development.

Li Family Compound

Longxi Village, Fanshi County, Qiyang Township, Yongzhou City, Hunan

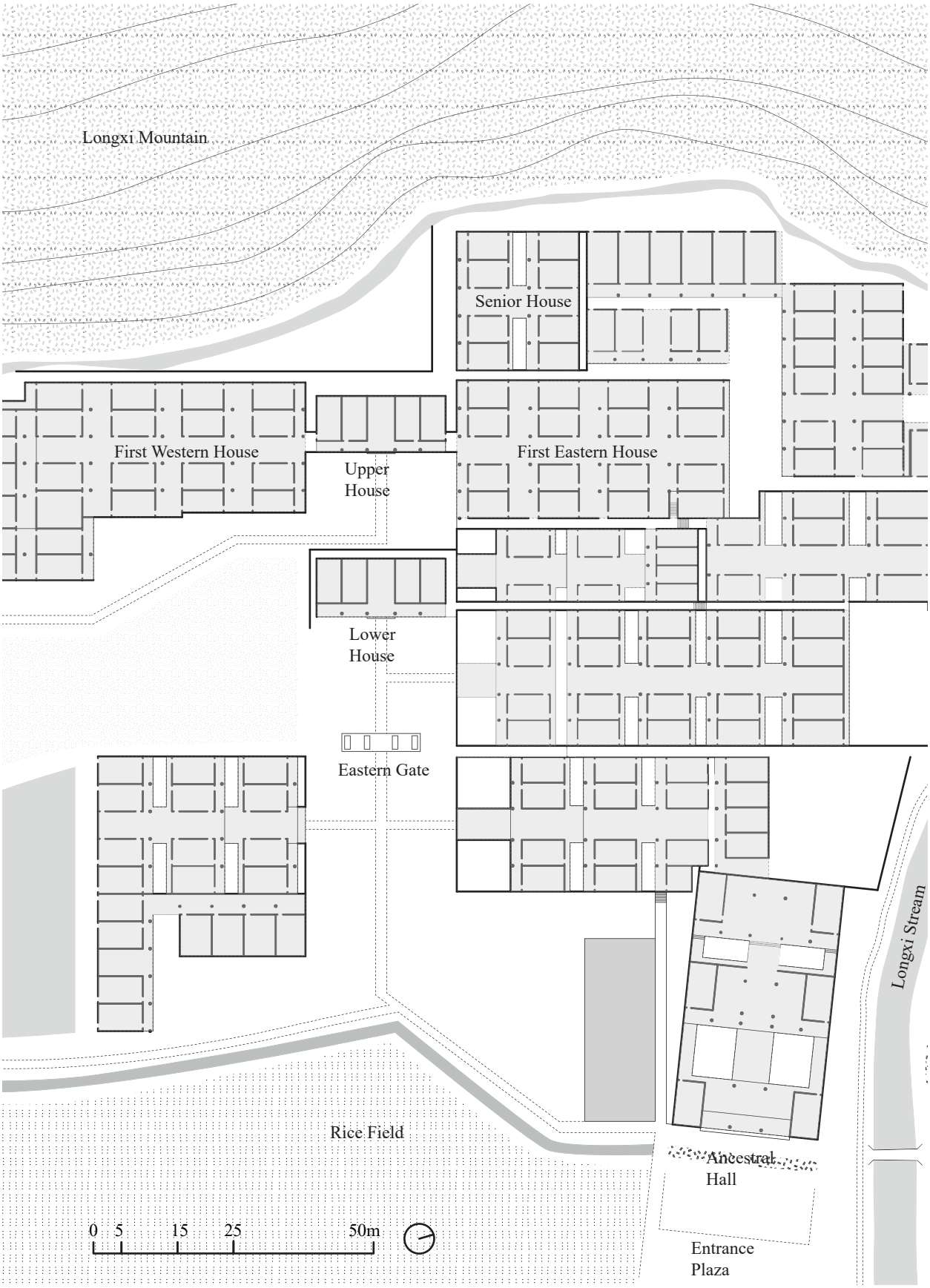
The restored entry arch of the Li Family Compound of Longxi Village stands parallel to the local county road and the Provincial Expressway. Beyond the gates, across a semi-circular field of rice paddy, an orderly group of gray brick buildings rest beneath at the foot of a small mountain. The wide entry path leads to a small opening containing an open courtyard about the size of a basketball court.

Green construction tape veils many buildings in the village, including the first building in front of the open entrance courtyard: the Li Family Ancestral Hall. Typically, this would have been the only public building of the family compound[1]. In the great Chinese Romance "Dream of the Red Chambers" (红楼梦), a primary piece of advice given by one of the central characters, Wang Xifeng, was "to invest in ancestral halls, for no matter what crime, that is what they [the emperor] cannot take away from us…" In the Confucian or Ruism tradition of ancestral worship, the family ancestral hall is a right to each recognized member, and each deceased family member would have a wooden plaque documenting their existence placed in the hall of elders. The hall contained the common memory of lineage; it was here that birth and marriage, significant ceremonies of life, rituals, and etiquettes were all recorded. The Chinese ancestral hall was the spiritual and architectural equivalent of a local church in the western setting.

1 Ronald G. Knapp, Kai-Yin Lo and China Institute in America, *House, Home, Family : Living and being Chinese* (Honolulu : New York: University of Hawaii Press ; China Institute in America, 2005).

Figure 1.1 *Left: Li Family Compound beneath Longxi Mountain. From Historical Architectural Map of Hunan, 2016, p.285*

Figure 1.2 *Right: Li Family Compound, Longxi Village Plan*


Longxi Mountain
Senior House
First Western House
Upper House
First Eastern House
Lower House
Eastern Gate
Longxi Stream
Rice Field
Ancestral Hall
Entrance Plaza
0 5 15 25 50m

The main village road directed traffic west from the Ancestral Hall towards the village center where a notice board was notifying travelers what to expect for their visit. The Longxi village and Li Family Compound were officially closed for visit and the scheduled re-opening of the site would be in late 2019. Local vendors informed me the site was under restoration but that large parts of the compound remained open for visit without any fee.

In plan, the Li Family Compound differs from most of the other compounds I had studied prior to my departure. The overall village appears to have followed an orthogonal plan with a series of walled compounds with its own central halls and side Tian-jings. The clear use of spatial separation, with linear corridors between the compounds, suggests that the courts were likely built in different and possibly sequential time periods. The main axis of the site orients towards the south-east and aligns perpendicular to the historic county highway. The individual courts align towards the main axis which means that the courts are parallel to the county road[2]. The Tian-jings are linear and parallel to the central axis of the compound. All of the chambers face the Tian-jings and thus the interior of the compound. The overall planning creates a system of introspective apartments for the residences.

I entered the village road to the left of the ancestral hall and the newly built visitor's hall (which was also under construction veils). A mass of building materials, mostly sand, gravel, rubble, ceramic shingles, and

2 官(Governance)道
(Road, Path)

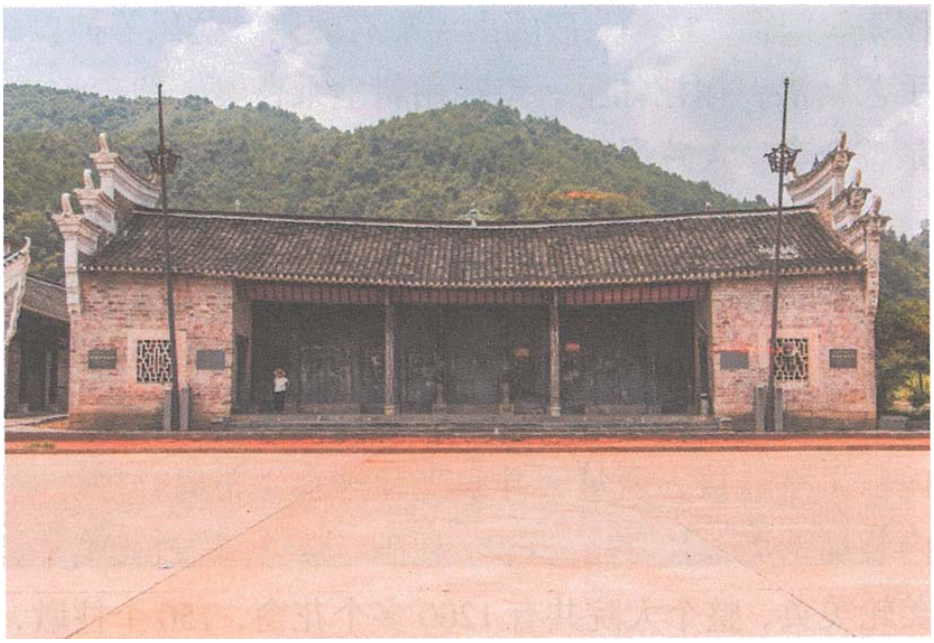
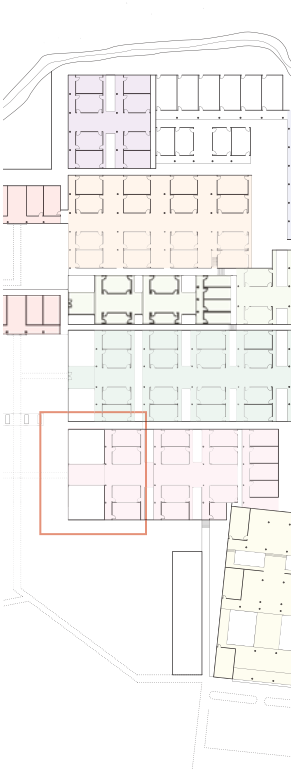


Figure 1.3 *Li Family Ancestral Hall, from Historical Architectural Map of Hunan, 2016, p.285*

displaced architectural pieces piled up along the two sides of the central avenue. I walked on the sandy path, overlooking the buildings that rose along the elevating topography towards the mountain. The trees on the mountain grew full and lush; it looked natural and mixed in comparison to the clear-cut and artificially replanted hills along the expressway. I learned later in conversation with the restoration project manager that it was the original, locally collected, *Phoebe Zhennan*[3], wood had been used for the complex and left a remarkable imprint on the environment. Elderly residents wandered through the village without bothering to look up from their daily stroll. The scene is empty like an abandoned stage, the last actors retired and the set waiting for a new party to unfold.

At the first open archway to the right of the main axis, a dog slept leisurely on the paved stone floor in the center of the corridor. It woke up, having noticed my unfamiliar scent, gave me a judging glance, and went back to its afternoon nap. Household furnishings occupied the inner courtyard which indicates that the resident did not move despite the on-going restorations.

The hall which I entered is completely open to the public and measures about 5m across. The roof of each section runs parallel to the central compound axis and the sky-wells, and the main corridor or hall of each court strings together the series of roofed sections. Under each roofed section, there is one apartment in each section of the hall, and each chamber has access to the front and rear linear sky-wells. According



3 High grade architectural lumber, the same species used on the palace buildings in the Forbidden City.

Figure 1.4 *Entrance door gate to the southern most house of the eastern branches*

to the plan that I had studied before the investigation, there should have been two large square Tian-jings by the entrance of the hall, which had been built over with new rooms since the production of my reference. The first two linear Tian-jings are about 2 m wide and the drainage sinks are about 1.5m wide. This particular resident makes use of the narrow space between their room and the drainage sink with the construction of a small masonry counter and a brick stove. The washing and cooking activates the ready-made drainage space into part of the household. The adjacent wooden lattice window becomes a convenient storage cubby for cooking and cleaning utensils next to the small kitchen. The door of the residence is left open, and the sounds of a television could be heard from the hall. Bundles of firewood, a traditional graining machine, a wooden toilet, and a tall ladder occupies the hall. The ladder leans against the end wall, a rope spans between one end of the ladder and a post, creating a makeshift laundry line.

According to the research plan, the hallway should have been connected the rest of the household without interruption, however, it had been divided with a masonry wall. A door opening on the bottom of the division wall connects the first space to the subsequent set of sky-wells. The second section is empty apart from building materials and construction tools—household objects are cleared for the upcoming renovations. In comparison to the first section, the uninterrupted space is well-lit from the filtered light from a set of three linear Tian-jing courtyards. Under

Figure 1.5 *A side chamber next to a linear Tian-jing. Various household furnishing populated the space, and the door of the unit was left open.*

Figure 1.6 *Left: looking back at the entrance on the second section of the house. Animals lesisurely walked around the spaces in the village.*

Figure 1.7 *Right: third section of the house, full height of the central hall with human scale*

the distant ceiling, the air on the ground level is dry and fresh in a humid day. The third row of Tian-jing courtyard has signage on the walls and an open door that leads into one of the households. This particular courtyard has not been altered with additional construction, and one could better imagine the spatial qualities of the original architecture. The two rooms on each side are labelled, “lady’s room” and “maid’s room,” respectively, yet both rooms appear to be identical in proportion judging from their exteriors. The only visible difference between the rooms lay in the different quality of the ornamentation and detail of the wooden lattice window.

I entered the maid’s rooms on the west side of the Tian-jing. Lame afternoon daylight filtered through the exterior skywell and the elaborate lattice windows into the dimly-lit room. An interior wall separated the apartment into two rooms, each containing a traditional bed, desk, and dresser. The connecting arched threshold aligned with the entrance doors on either row of Tian-jings. Both rooms have an additional door that opens to the central hall. The open door from the earlier section of sky-wells is in a similar layout. An aged mechanical clock sat on the dresser in

Figure 1.8 *One of two bedrooms in the divided chambers*

the back room, bathing in the afternoon sunlight from the western lattice window. Amidst all the traditional wooden furniture, this object acts as an artefact to remind the more recent, more modern occupation of the room. The back porch on the other Tian-jing had been modified with a property division walls with a cooking stove built into the space.

Back in the third row of sky-wells, an opening in the firewall led us to the next household. Two vertical stone pillars and a horizontal stone header frame the connection threshold on the property wall. A crack runs along the side of header, which brings concerns on the structural integrity of the doorway. Stone lattice windows on the firewall visually connected the two sets of Tian-jings and courtyards. The exterior wall of the next households had been removed. Moreover, the western section—the part closer to the central village road—had been replaced with yellow mud brick constructions. The general form of the rebuilt suggests the inclination to repeat the old layout. However, the loss of the compound wall as well as the possible failure of the original drainage sinks may give the owners less reasons to conform new buildings to the original plan. On the opposite compound wall, marks of perpendicular brick pieces exposed signs of previous building attachments. Beneath the standing firewall, a family walled off their section of the sky-well with a red brick division wall. The new structure clung onto the background like a scab on a poorly healed wound.

Some parts of the original plan are not reconstructed, and a small

Figure 1.9 *Looking north from the opening on the third section towards the next household*

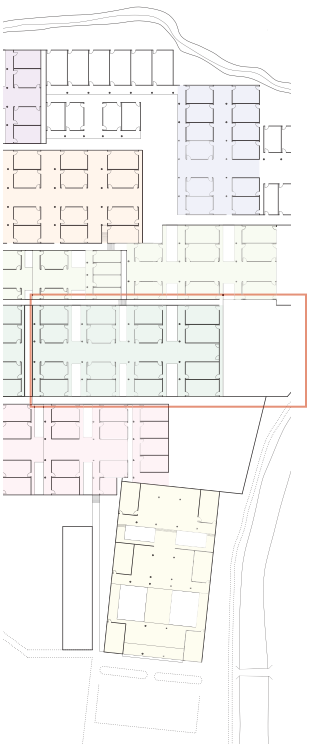
clearing was left open from the space that once held rooms and walls. Someone had built a brick building at the end of the broken firewall. It stands mostly within the boundaries of household to the north, but a small portion of the head space protruded into the property of this household. A small exterior stair led up the flat roof of the added building. The accessible roof is likely used for drying grain and other produce. I stood and looked out from the flat roof that appeared out of place and out of time within the building context of the pitched roof village. The linear lanes of Tian-jings between the roofs connected the water channels across the village like blood running through veins. The water passes down from the Longxi Mountain behind the village; it flows through the compound, and finally collects into the fields that feed the people. The scene before me revealed a glimpse of the slow life that has been lapsed behind material ideals and economic burdens of modernity.

When I returned to the area left open by demolition, my spirits were lifted from seeing the well-preserved back section of a central hall. The full length of the hallway once connected the household from the central village road to the small ravine at the back. A cry of laughter broke through the silence; a group of children raced through the hallway, three boys in the vanguard, and one girl trailed behind them. They crossed through the clearing and turned left towards the open stone archway from which I entered. They appeared to be familiar with the pathways; it seemed that there are children living in the Li Family Compound.

Figure 1.10 *Looking down from the flat roof platform, seeing the linear Tian-jings connecting the rows of buildings together*

The well-preserved back hall appeared to be continuous through the many rows of Tian-jings sections ahead. However, upon closer inspection of the entrance of the hallway, I discovered a door frame wrapping around the threshold. The door frame contained drill-holes that suggestted that it has the capacity for six screen doors. Similar frame marks appeared along the length of the hallway; it could be assumed that the central hall could be divided into multiple separate spaces or opened for cross-sectional access. Air towers (Fig. 1.13) above the c entral hall connected the north and south linear sets of Tian-jing courtyards. Wooden columns supported the upper structure of the first air tower, and the construction completed with a system of intricate wooden space dividers. The drainage sinks on both sides of the first Tian-jing section appeared to be functional; the units in the connecting courtyards appeared fully occupied with perishables and household items. Only one side of the wooden screen doors remain below the next air tower. The overall structure of air tower including the wooden frame appeared to be sturdy, but the roof is untiled and the secondary eaves were missing. It is reasonable to conjecture that the lack of proper roofing has caused the lower wooden system to weather much faster than the opposite wooden screen system.

The vast majority of Tian-jings are spatially flexible and allow the residents to modify the limited space with simple constructions. Many units contain within them various water-structures, such as toilets and



kitchen sinks built around the drainage sinks to fulfill the modern needs of family life.

A grandmother walked her grandchild to play and the child looked at me with curious eyes. The space was quiet until a small group of tourists came across the garden at the end of the hallway. They stopped to admire the Loquat tree that was blooming in the once-groomed garden. I approached the garden as the tourists passed beyond a small gate at the end. The restoration work left a mass of building parts in the common garden. I walked through the back door of the garden is named the “Little Dragon Gate”. The exit faced the modest Dragon Stream which brings the mountain water that blesses the Li Family and irrigates the fields that the Li Family live on.

A number of modern constructions sprouted outside the compound walls. It is likely that throughout time the population of the family increased beyond the capacity of their ancestral home, or that some people simply desired to live in a modern home. The numbers of recent constructions are limited by the small area of land between the sloping mountain to the north and the small Dragon steam to the east. The buildings directly adjacent to the compound wall had attempted to orient with and physically connect with the existing building fabric. However, the original building craft seemed to be lost, and many of the newer buildings were constructed with inferior technique and materials such as red brick or mud bricks with limited openings. One such building is

Figure 1.11 *Looking east at the well-preserved back section of a central hallway, a grandmother walking a child standing beneath an air tower*

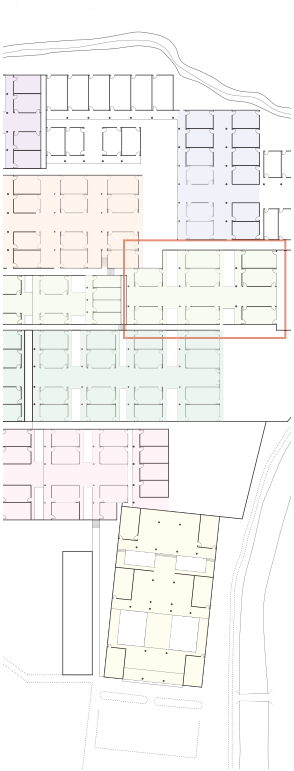
Figure 1.12 *Left: Little Dragon Gate, loquat tree in the garden behind*

Figure 1.13 *Right: an original air tower above the entrance of an extension*

accessible from the exterior of the compound and has another facade facing the central hall of one of the houses within the compound. The new construction protrudes into the original house, and its shorter side connects with a passage to the garden where I came from. The inner facade of the modern building sits beneath the air tower of the original house; the existing architectural element provided a ready-made outdoor canopy for the new building.

I walked through the passage connecting the garden, the new building and the central hall of another compound household. Three women were conversing amicably in the local dialect in the adjacent room beneath the air tower. I approached to introduce myself and my cause, and an elderly woman came forth to answer my questions. I learned that her family, all of whom are Li's, had been living in the village for more than three hundred years. It was clear that many of the elderly had no intention of removing themselves from the family home despite the deterioration and on-going reconstructions. They expressed that they were comfortable here as they had been all their lives.

Overall, the particular house in which I conducted my interview



appeared to be shorter in east-west length than other houses in the village, and there were only two rows of Tian-jings and three rows of rooms. The walls of the public hallway are pitch-black, probably due to the smoke from coal burned continuously in the two coal stoves in the hall. The stoves, themselves cast in concrete—which indicated them as later additions to the architecture—have multiple oven-tops on each fire pit.

I observed through the central hall that the end facade of the adjacent house had been altered—exactly half of the original wood facade had been replaced with red brick construction with two little stone lattice windows. Large character texts and quotes attributable to chairman Mao were painted on the neighbour's façade that are popular during the Cultural Revolution period. It is likely that there had been no significant changes or additions to the architecture in this particular area since the late 1960s to early 1970s.

Although many chose to add divisions around their spaces, certain connecting lanes are left uninterrupted throughout the village. One could pass through the entire village, and cross through many households without being exposed to the elements. Perhaps they are historic passages within the village, or the result of a neighbourhood agreement between the residents. Apart from the planned east-west pathways between firewalls, a few more traversing pathways connected many of the houses along the north-south axis.

The northernmost and older buildings in the premise were

Figure 1.14 *Modern private constructions between the Longxi mountain, the original compound walls, and the Longxi stream.*

Figure 1.15 *Looking south from one of transversing corridors that run parallel to the linear Tian-jings and connects three central halls and multiple households*

unoccupied due to the ongoing restoration. Light metal scaffolding was set in the narrow courtyards for upper-level structural work and lattice-frame ornamentation renewal. One of the rooms of the first branch house was open during restoration. A restoration worker was inspecting the wood-working on the old door. The man worked for Zhejiang Linhai Heritage Architecture and Engineering Inc. He said we were allowed to look around but advised us to use our discretion on the work site. Similar to the previous room which I entered, a drywall divided the chamber into two spaces. The entrance room also contained an original staircase leading up to the next floor. Compared to its more modern counterparts, these stairs are rather peculiar in construction and in proportion. The stairs were comprised of a single, long log split in half and are joined together with stepping boards; the angle of the stair tilts at almost 60 degrees to the ground, and the boards overlapped each other significantly between each step. I found out later that it was slightly easier to move up than down the stairs while holding onto the sides for support, though I almost had to crawl up the stairs on my first go.

The second story felt more spacious and without interruption in the floor space like the lower floor. A circular stone lattice window with intricate patterning opened on the façade wall overlooking the sprawling villagescape below. This is the first branch house; its adjacency to the central house, more elevated position, and more intricate architectural construction expressed its social importance within the building fabric.

Figure 1.16 *Original wooden stairs in one of the chambers under restoration*

Any attic structure that may have existed had been torn down, and the roof of the room was uncovered as the tiles had been removed for retiling. No interior finishes or insulation covered the roof construction, and the tiles were to be aligned directly on the rafters. An opening in the division wall joins the room to the adjacent chamber. Both rooms were largely empty: a large red wooden coffin beneath by a layer of oil paper stood alone in the second room. It was curious to see someone making an effort to hide a coffin on the second level of an unoccupied room within a largely empty compound. The steep stairs to enter the second level allowed a tight threshold for a full–size coffin. Articles had been published in Western news such as the New York Times article[4] regarding the enforcement of cremation in Jiangxi (a neighboring province) and the confiscation and burning of private coffins in rural communities. It is likely that there are people who prefer burials and have gone to great lengths to ensure this desired outcome when the time comes. To hide a coffin in an unoccupied public property is a great means to avoid responsibility and prevent neighbours from removing or touching them due to superstition. Moreover, an object inside a historic building and would potentially be protected as a heritage artifact would consequently be protected from immediate removal or destruction by officials. This explained the ongoing presence of the coffin in the architecture despite the ongoing restoration around the building.

Returning downstairs, I examined the ornate door which

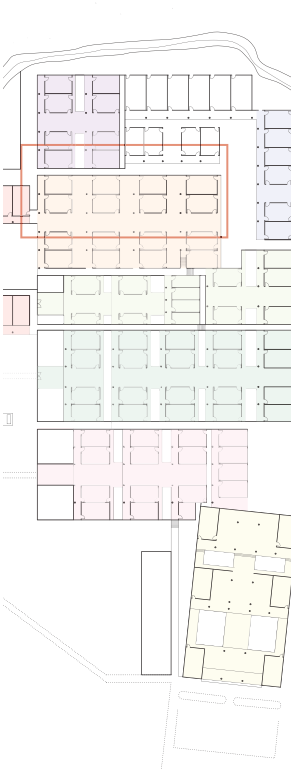
4 AUSTIN RAMZY, "Thousands of Confiscated Coffins and an Exhumed Corpse Stoke Fury in China," *The New York Times*Aug 3, 2018. https://global.factiva.com/en/du/article.

was being worked on by the worker from before. The replacement of the detail paled in comparison to the original detailing, much as the work of a pupil pales in comparison to the master. I proceeded north under a forest of scaffolding, the entire branch house was undergoing restoration. I poked my head through open doors here and there, discovering that most of the rooms were divided in half to create two separate bedrooms. Most of the division within the chamber maintained an axial doorway to ensure the access from the fore-yard to the back-yard. The few rooms without any special separation housed community amenities such as convenience stores or large kitchens for families with multiple units.

I passed by the central hall of the branch house, where workers meticulously worked to reinstall lumber parts at one of the air towers. The workers removed lower lattice windows for restoration elsewhere, while they mended the upper lattice frames with new wood pieces where they were missing. The freshness of the wood upon the aged background reminded me of fresh patches of paint on an old coat. Perhaps a fresh wash of wood finish could mask the change in time, but it could not mask the loss in craftsmanship.

A meagre stream ran around the northern perimeter of the First Branch house. I came upon a number of old buildings north of the branch house which appeared to have been built before or near the same time as the original construction. The building immediately to the north-east of the Upper Main House carries the name: Hall of Generous Benevolence (厚

Figure 1.17 *Central hall of the First Eastern Branch House under restoration, unpainted and renewed tracery clearly standing out from the original casing*



慈堂), the hanzi characters that are generally used to describe the elderly. The proximity of the Hall to the Centre House, and the higher social status of elders in the culture of Ancestral Worship highly suggested that the most senior members of the family had lived in this residence. The buildings to the east of the Hall of Generous Benevolence did not follow the typical Tian-jing-room configuration as the rest of the compound. It is possible that different buildings types were reserved for those outside the family, such as servants, visitors, or craftsmen.

Upon arrival at the Upper Main House, I meet a worker that was inspecting a restored wooden support post. The upper part of the post is the original wood while the bottom has been replaced with fresh lumber. The worker explained that the lower portion was prone to ant bites and moisture damage overtime. However, the integrity of the upper section convinced the designer to reuse the original material due its material scarcity and historic value.

I introduced myself as a student research to the man working on site, who turned out to be one of the project managers of the restoration works. We chatted about the project and he revealed to me a number of facts about the site. He explained that “These kind of building are just kind of a hassle (to maintain), but in truth these buildings are more comfortable to live in than the modern buildings. It is only because we are using air conditioning now, if we don’t use that, those (new buildings) are not as cool as these ones. These buildings are warm in the winter and cool in the

Figure 1.18 *Connecting lane between the First Eastern Branch House adajcent the Hall of Generous Benevolence*

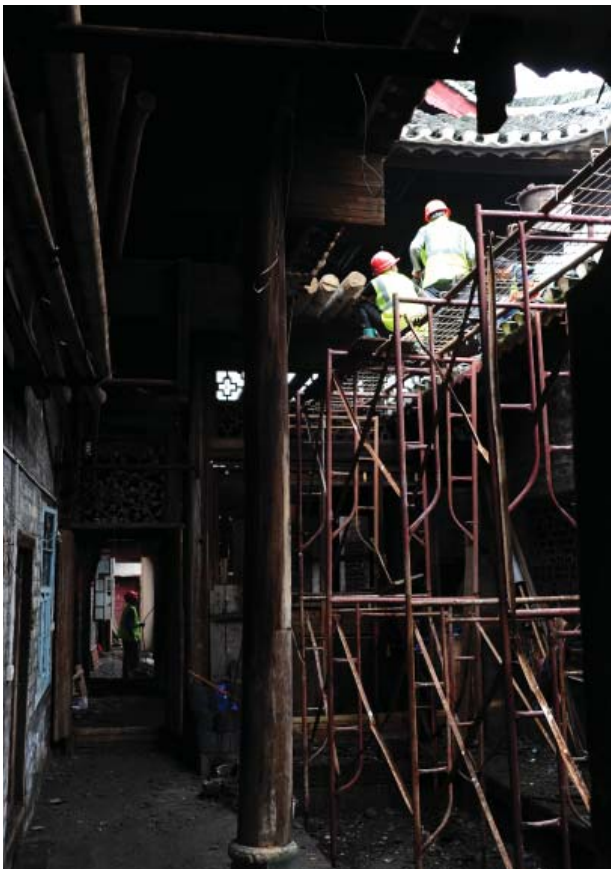
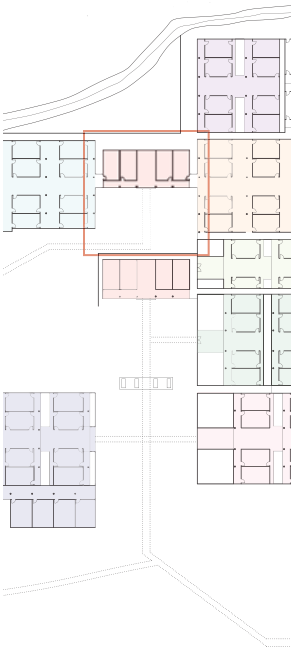


Figure 1.19 *Left: restoration workers meticulously reinstalling lumber pieces beneath one of the air towers in the First Eastern Branch House*

Figure 1.20 *Right: a restored column with old wood attached to new wood*

summer…" I commented that the high elevation of this location could help with the cooling process. "Yes, it feels like a temple (in the mountains), not cold in the winter, there is a gap beneath the floorboards (and the ground), there is a second floor and another attic in those buildings, every floor is warmer than the one below) …" I told him of the old building that once belonged to my family, and lamented at the loss of the architecture because people took it down to recycle the building materials. He replied that: "This area was poor at one point, they didn't make any changes. After that, they weren't allowed to take down anything… Actually, when we came here, all these buildings had deteriorated. (The bricks) all cracked, we resourced these bricks from other old buildings." I pointed that the air tower where the workers are currently working on and asked whether the lumber also needs to be changed. "Yes, all of the parts must be changed, look inside (the inner section of the wood), it has warped beyond belief… One of these air towers! Look at just one piece of lumbers. If this piece rotted, then everything must be taken down. Look at this piece that is sinking. If it sinks to here, everything above (the roof) will start to leak. The failure of one piece would lead to the structural



failure of the whole; everything is tied together in these structures. After we take everything down, we need carefully put the other pieces together, and we won't break the crown." His words reminded me of the fragility of culture and the temporality of material. However, when the project manager talked about his jobs, he seemed very proud to be working for a first class architecture and construction enterprise. "There are hundreds of heritage architecture firms in the country now." Perhaps the vernacular building craft is coming back to the country. Moreover, the revitalization of the compound directly and indirectly brings positive influences to the quality of architecture of nearby villages through the process of place making.

The project manager walked with me from Upper Main House to the western branch house and pointed out some of the work that remains to be done in the village. The western branch house stood in a destitute condition in comparison to the eastern branch houses. No continuous facade runs around the houses to protect its inner organizational structure. Anyone could freely pass through the courtyards from one side to the other without any significant physical barrier. Therefore, there could have been more security and privacy concerns for the residents who were exposed outside the protection of a compound wall. It appeared that the western houses were given less attention in the initial construction and further modification. Moreover, the Tian-jing drainage sinks were designed differently. Instead of containing one pair of drainage sinks on

Figure 1.21 *Left: Upper Main House under restoration*

Figure 1.22 *Landscape panorama of the site from the south-west. Restoration workers tiling the ceramic roof shingles before the storm. Gate arch of the village across the rice paddy field on the right.*

either sides of the central hall along one north-south axis, two narrower sinks ran along each north-south axis. In comparison to the cool dry air in the Eastern branch houses, the air in the corridor smelled more foul, felt more humid and hotter. The inability of water to drain had contributed to the disproportionate deterioration of the brick masonry structure. Many parts of the wall appeared to be either reconstructed poorly or filled in with a replacement material.

I exited the village on the western "channel" gates. No Gatehouse indicated the boundary of the village compound; instead, a largely open archway extended from the outer wall of an adjacent building acted as the back door. Cracks spiderwebbed along the exterior brick surface above the lintel. Three external buildings recorded in my research map—the granary, the study and the New House—had been replaced with a row of uniform townhouses. The designers of the row houses made efforts to ensure a commonality between the architecture of the new buildings and that of the original compound. An old path ran around the drainage pond that connected the Western Gates to the rice paddy fields. In the distance, a swarm of workers hurried to lay out the ceramic roof tiles before the incoming storm. The rain would ruin their handiwork on

the wood structure restoration without protection. From the rice paddy trail I observed that the structural material above the windows had been changed to mud-bricks from the green-bricks beneath. The structure of the wall had been plastered over, and the people covered the façade with large character texts at one point in history. All of the evidence suggests that the roof had been rebuilt or vertically extended at one point.

The restoration company set up a make-shift tent just outside the compound to make a workshop for more delicate pieces. Many of the lattice windows were moved to this location for craftsmen to conduct work on a flat surface. New pieces are reproduced to best match their original character and style of the tracery windows with missing parts. The crew also constructed new doors for the empty door frames in some hallways.

I re-entered the compound on the mud-path adjacent to the channel that carried water between the drainage pond and the Dragon stream. The little channel runs across the front border of the built compound, and fed into the rice paddies of the property. Before I exited the premises, I turned to use the public bathroom converted from an existing building by the Visitor centre. The main hall of a house became the entrance, and

the two side chambers hosted the gendered bathrooms. In the female bathroom, the manager simply used a large board to block the lower part of elaborate circular tracery windows for privacy. Elderly residents came to use bathroom while I examined the architecture. It occurred to me that perhaps the authorities not only appropriated it for the use of visitors and tourists but for the local residents as well. The Tian-jing drainage sinks could drain the colossal amount of gray water from the extended rain reasons, but never solid waste. Perhaps, like Siheyuan communities in the northern parts of China, the older houses do not have connected sewage to cover modern sanitary needs.

I walked across the gap between the bathroom and the visitors Centre, and I came forth to the scaffold side of the Ancestral Worship Hall. I turned to look at the path leading up an open door to the south-most eastern branch. I turned around, and a large back dog walk past me leisurely towards its safe house for the night.

Figure 1.23 *View of the village entrance, a mass of old corner stones and lumber pieces scattered on the path*

(Endnotes)

i As we passed southernmost city of Yongzhou (永州) and approached Qiyang city (祁阳), my father explained the regional naming practices in Hunan. The Lake lands Region originally included Hubei (湖北), north of the lake, and Hunan (湖南), south of lake. The geology of Hunan was divided south of the Lake Dongting (洞庭湖), and south of the Yangtze River. Hunan was also known as the river lands with three regions and four waters. The three being Xiaoxiang (潇湘), central country, Zhenxiang (蒸湘), southern country, and Yuanxiang (沅湘), western country. The four rivers cross through the body of the provinces and meet at Lake Dongting, and all water would join the Yangtze River to enter the Eastern China sea. In this province, significant counties have historic names from the history books, and more specific localities are differentiated with an orientation name to specify its geological position. In Chinese Fengshui, the ideal placement of the home is on the fertile flat lands between the hills and the water. In Hunan, those towns located south of the mountain and north of the river are named with Yang (阳), and those situated north of the mountain and south of the river are named with Ying (阴).

May 1, 2019 Travel Observation

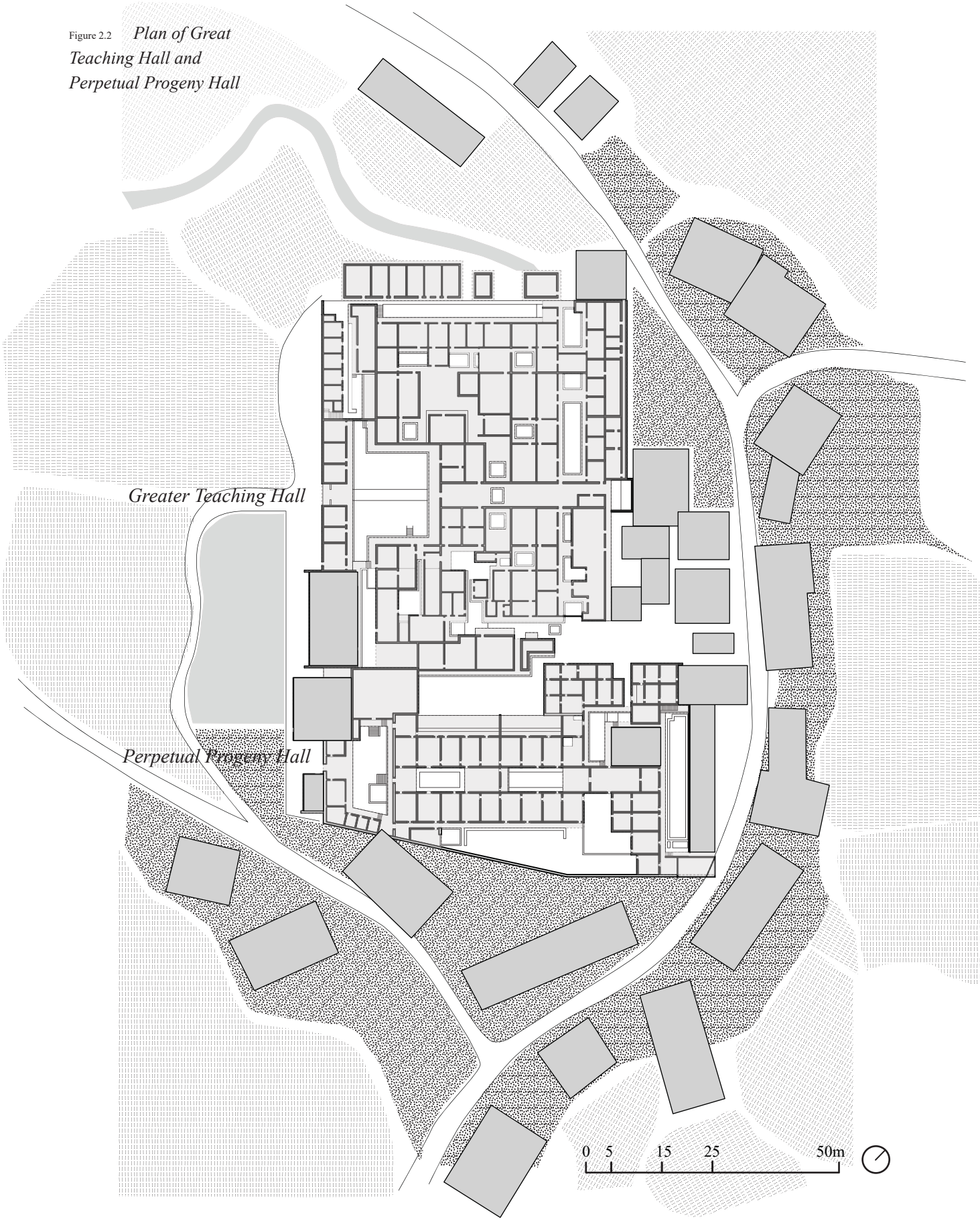
Zhu Family Compound

Xianghuaqiao Village, Gantang County, Shuangfeng Township, Loudi City, Hunan

The Historical Architectural Map of Hunan recorded two remarkable Zhu Family Compounds in the Shuangfeng region, one in the Longgan County, and the other in Gantang County. In fact, a dozen Zhu Family Estates turned up on Baidu Maps around the Shuangfeng County. Two Zhu brothers created The Zhu Family in Xianghuaqiao Village, Gantang County in late Qing dynasty around mid-19th century.[i] In comparison to the compound construction that were built during the height of imperial rule and stable society – with the front gate facing the main roads, the Zhu Family Compound in Xianghuaqiao Village hid away in a valley surrounded by considerable mountain ranges. The compounds began construction in the late Qing dynasty when the imperial empire had been continuously declining in power and the country was experiencing both inner conflict of Taiping Rebellion and foreign threat of Opium Wars. Rather than an elegant country estate, the inconspicuous family compound rose as a fortress against the outside social and political unrest.

Figure 2.1 *Google Earth view of Xianghuaqiao Village and the Zhu Family Compounds*

Figure 2.2 *Plan of Great Teaching Hall and Perpetual Progeny Hall*



The Zhu Family of Xianghuaqiao Village hid in a valley an hour away off the regional expressway – at least on navigation. We left before lunch time, and hoped to find a spot to grab some food along the way before we arrive at the place of investigation. However, no operating restaurant appeared along the local county road that past plot after plot of rice paddy fields with occasional rural houses. Even the local town with the largest conglomeration of buildings along the two-way county road only contained a few businesses of stone work and small trade. We stopped at the first dry goods store near the three-way crossing just outside of the town. The people who ran the shop barely recognized my Xiangxiang dialects, and I had a hard time trying to comprehend their words in the local dialect. South of the Yantze River, it was not unusual to have varying dialects between provinces and counties[1]. The phenomenon was so common in Hunan that there is a very saying: *no pairing sounds beyond ten lis*[2], the cross-cutting hills and waters of the province created varying linguistics and cultures amongst people living in short distances. In the City of Huaihua, residents living in one side of the Huai River spoke a distinct dialect with those living on the other side.

Somewhere along the county road, we made a sharp turn at a hidden road going up the hill, a tortuous one lane path grappled onto the back of the mountain. Tall grass and limestone rocks populated the path in the beginning, once we drove onto the flatter sections of the mountain, a few brick houses stood firm next to the gentler cliffs. A bamboo forest sprouted beyond the buildings, the branches slumped down and a shower of leaves cascaded onto the path. Through the tunnel of green, expansive fields of rice paddies opened up in a valley in the heart of the mountain, and a village arose at the centre of the fields. As I approached the village, the road split off to different paths, each lead to a cluster of buildings, some with older features that carries hints of history. Many groups of exposed brick buildings appeared along the main path, none appeared remarkable until I passed by a structure extending from the street side protruding into the expanding landscape in a massive brick façade in the manner of an armoured fortress. In comparison to the unremarkable street front façade, the monstrous body of the building was an astonishing sight amongst the sprawling fields of rice.

I could see neither businesses nor shops in the village, or any

1 Ronald G. Knapp, Kai-Yin Lo and China Institute in America, *House, Home, Family : Living and being Chinese* (Honolulu : New York: University of Hawaii Press ; China Institute in America, 2005).

2 Li is the traditional Chinese unit of measurement. The embodied value varies between different time periods, varying from one third of an English mile to a half-kilometer, and the latter being the modern standard.

indication or naming of the current place appeared anyway on neither banner nor sign. I followed the road along until I saw a group of young people sitting leisurely at an open door front, which was apparently the village council office. I politely inquired if they knew where I could find the Zhu Family Compound, they gave me a look of puzzlement and immediately asked whether I was here to "collect land" in great enthusiasm. As many young people had left the village for work in the cities, many of those left behind have fewer finances and ability to maintain their old homes and compounds. Many homes in the countryside have emptied since the national economic reform of 1980s. Moreover, the Zhu Family Estates received county level heritage categorization in 2004, and provincial level heritage categorization in 2011. However, no explicit order or government action has been announced with regards to the becoming of the architecture. In May 2016, a public noticed showed up around the old buildings in the village that warmed against private intervention with the heritage architecture about the structural safety of the aged buildings. The delay in action from the categorization may result in unnecessary neglect for heritage architecture, because people may choose to move out and stop regular maintenance only a daily or seasonal basis. The older buildings require constant maintenance and upkeep, after long periods of neglect; it is more difficult and expensive to revitalize heritage architecture than to build a new poured concrete building with fresh plumbing. Many of those who stay behind in the country now wait for the government to come forth with a resettlement offer to trade floor area of the heritage architecture for straight up cash to build their new homes.

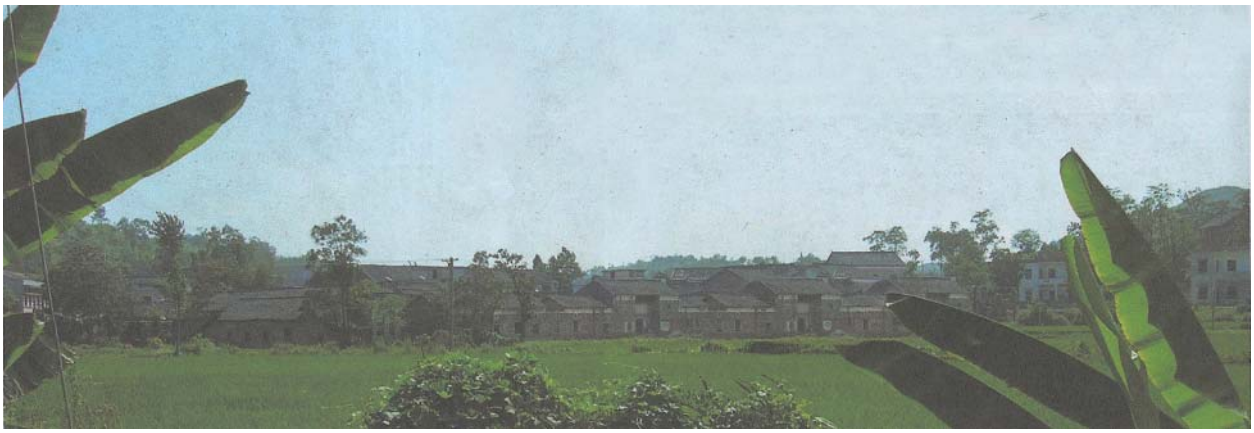


Figure 2.3 *Great Teaching Hall and Perpetual Progeny Hall Facade, from Hunan Heritage Architecture, 2015*

Weixun Hall: Greater Teaching Hall (伟训堂)

Once the young people understood that I was only there to visit and document the buildings, they immediately lost their initial enthusiasm. One young man, surnamed Zhu, was kind enough to show me the way to the front entrance of Greater Teaching Hall. We back tracked to the beginning of the village and made a turn onto a path that lead into the fields. As we drove into the fields, the main facades of two great houses emerged in our horizon. I knew from the previous research that the front of the Greater Teaching Hall measured at least of 100m long, but the façade of the supposed largest estate in the village appeared lacking in width. The young man Zhu mentioned that the original façade was much longer, but did not dwell to explain. Photos taken by visitors in Februarys 2013[3] and the Hunan Architectural Map of Hunan published in December 2016 show a largely intact façade of the Great Teaching Hall[4], (Figure 2.3) however when I visited the building in May 2019, only the gatehouse from the façade remain standing. The body of the door gate was the only remaining section of the former exterior defense wall. I could see coin size openings once used for fire arms on the gate house, the double swing wooden door was spotted with notes and scratches. The paint and engraving on the palette above the door had been levelled; only hints of the in situ line work belied its former elegance. A group of children played tag in the front courtyard with hen bobbling around the arcade; they were out of school due to the labour week holiday. The children gave us curious looks but greeted us politely, their reaction made me believe that they rarely receive outside visitors. Old lumber scattered in the courtyard, and old pieces of ceramic tiles here and there, only the wooden lateral beams with the intricate craving of Chinese folklore in the front porch alluded to the cultured aesthetics of its former residents.

Darkness shrouded the space beyond the stone door way, a single shaft of light cascaded down from the Tian-jing and illuminated the offering altar in the centre of the room. (Figure 2.4) Although the centre area around the Tian-jing had been built in an inferior brick construction, the back side of the long ancestral worship chamber comprised of solid brick. Considering construction of other Tian-jing compounds such as the Li Family Compound, the area around the central Tian-jing is generally surrounded by wooden space dividers. It is highly likely that they had

Figure 2.4 *A single shaft of light from the Tian-jing illuminating the center of the Greater Teaching Hall*

3 "双峰县甘棠镇 (Shuangfeng County - Gantang VIllage)," Hunan Heritage Villages and Homes, July 2013, http://hngcz.txhn.net/gczgmj_gcgz/201511/t20151119_627107.htm.

4 luhe Li et al., *Historical Architectural Map of Hunan*, 1st ed. (Beijing: Qinghua University Press 清华大学出版社, 2016).

Figure 2.5 *left: One of two secondary Tian-jing courtyard of the Greater Teaching Hall*

Figure 2.6 *right: Rear wall along the center axis of the Greater Teaching Hall*

replaced the original structure at some point with the yellow mud-brick wall. Despite the deteriorating state of the roof structure above, the water sink of the central Tian-jing kept in excellent condition, the circle of stone carving of protective beast around the structural wall of the sink were undamaged and minimal patches of moss suggested that the draining system continued to function since its construction in the 1850s. Two additional rectangular Tian-jing courtyards lay on each sides of the yellow mud-brick wall adjacent to the main water sink. (Figure 2.5) However, neither the left nor right branches of the compound exist in a functional state. The square Tian-jing courtyards on the two adjacent sides of the main hall both flooded with debris and the surrounding two storey chambers appeared to be in a dilapidated condition.

In the back of the room, a multi-storey cabinet wall stood largely void of the ancestral tablets that it was built to hold, the temple of ancestors contained only 4 photographs of what was possibly the immediate family of the current household. Two small doors opened on the bottom sides of the back wall, the thresholds led to a dark and cramped chamber with additional structures built in to the back space. From a window made into an infill wall, I could see a long rectangular Tian-jing sink in the

adjacent space to the north. (Figure 2.7) Through the opening, I felt the unbearable hot air of the exterior courtyard without its overhead eaves from the original roof structure. The rest of compound beyond the linear Tian-jing courtyard had been largely replaced with modern construction, the fabric of the original compound disappeared beyond the Tian-jing. An enormous stone wall stood beyond the additional structures of the back room, elaborate carvings of distant landscapes and fortuitous characters illustrated the wishful blessing of the forebears for their family and progeny. (Figure 2.6)

As I returned from the back, my eyes readjusted to the darkness of the central hall. I slowly noticed the objects sitting behind the wooden plans aligning the two walls of the chambers; I saw a pile of coffins. For traditional Chinese, no matter how far they move away from the central home, many wishes to be buried at the place of their birth, the Chinese saying *the fallen leave return to its roots*. The central ancestral hall acted as the public space for the people of the compound, it functioned as the institution for weddings, births and funerals, and contained the common memory of all the decedents of the compound[5]. Pagan belief and ancestral worship remain popular with the older generation, perhaps, the religious and spiritual nature of this building protected it from private development and renewal.

When I left through the door gate of the Greater Teaching Hall,

5 Knapp, *House, Home, Family : Living and being Chinese*, 295-333

Figure 2.7 *Rear side Tian-jing, compound beyond courtyard had been rebuilt*

an elderly woman approached me. I asked her whether she remembers how large the compound used to be, and how many rooms there were. "There was (multiple) tens of sky-well," she said, "for a compound this large, there wasn't a single dark room, every chamber was illuminated in direct light!" I asked her how long has she been living here. "For about half a century, since I married in. At those times, You didn't need to get out of the courtyards, you can walk and walk and not go out of the compound. You see the edge of the rice field over there? That was the edge of the outer walls… It's all gone, gone." I told her such buildings are not common around Hunan anymore. She told me: "(I) don't know how much we could reconstruct … Those bad (broken) bricks, the green (grey) ones … some of the drainage sinks collapsed… These buildings are almost two hundred years old, we didn't know it was almost two-hundred years old until we were taking it down, and there were stone markings on the bottom (foundation) that marked the construction date! You see this door behind you? (The battered wooden front door) This was a metal door!" "This is metal? But it's a wooden door? (Figure 2.8)" I exclaimed. "This was the original door, but people scraped down the metal façade on the outside." She signed and fell silent as she gazed at the door twice her height.

Figure 2.8 *View of the Greater Teaching Hall from the front gate*

Figure 2.9 *Shaozi Hall rear facade on the street side, entrance gap on the left*

Shaozi Hall: Perpetual Progeny Hall (绍子堂)

From the gate door of the Great Teaching Hall, across the centre field of rice paddies in the village the faint outline of another great compound was hidden beneath staggered new construction here and there along the perimeter. There was no road way to cut across the field; we drove back onto the village road and the peripheral road around the compounds. As I got to the first intersection of the village, I noticed a long building with a continuous façade. (Figure 2.9) It orientated toward the west, the length of this façade paralleled to the back wall of the Great Teaching Hall. The façade had once been constructed mostly with large grey bricks, however large sections had been replaced with yellow-mud bricks. The structure appeared to be the back house of a larger compound. Near the corner of the long building, a small gap opened to a path near the edge between the back façade and an ending structure. The two-storey tower next to the passage had been abandoned, rubbish spilled everywhere and swarmed an antique bed frame, and the floor boards of the second floor had caved in. The narrow passage leading downwards measured a little more than open arms-length for an average Asian man, chiselled stone pieces paved the steps. (Figure 2.10) A drainage pond sat at the bottom of the steps, a large rectangular court unfolded before me as I descended the steps. (Figure 2.11) The long building on the street side sat on a rectangular stone base that levelled the two-storey building on the lower ground level, the courtyard space remediated the elevation

Figure 2.10 *Stone step from the street*

Figure 2.11 *Rear courtyard of the Perpetual Progeny Hall*

different in topography, it also provided a buffer space between the actual compound and the main street. It is likely that the family members dwell within the main structures, and the outer building is most likely used for the house servants or working guests.

Most of the windows and doors were shut or boarded in the courtyard, only one main chamber with ornate stone tracery windows appeared to be occupied along the entire length of the back façade. A mess of bowls, buckets, and household objects littered the scene, various household objects obscured any original glamor of its past dignity. The large courtyard appeared to be an independent yard for the surrounding buildings until I found another small gap between a re-constructed two-story house and the edge of the back façade, I saw a large metal cylinder standing at the end of the narrow gap. As I walked through the gap, a space opened up into a rectangular Tian-jing courtyard, a water pipe connected between the water cylinder and the water well with a stone lid through a hole drilled on the side of the small infrastructure. A side passage opened towards toward the north, I could see from my position that the way led to the back courtyard of the Greater Teaching Hall where the stone wall stood. The two compounds connected to each other through discreet pathways within the overall urban planning. I looked up from the ground and saw multiple ornate lattice windows and elaborate exterior roof beams around the courtyard. The plaster on the wall had partially

Figure 2.12 *Wall Paint peeled off to show the brick structure behind*

Figure 2.13 *Central tower of Perpetual Progeny Hall, side entrance*

fallen off, which exposed the mix-brick structure behind. (Figure 2.12) Yellow mud brick were stacked on top of 4 layers of grey bricks. The rest of the compound followed the same method of construction. Since the family depended on the Qing imperial political services, it is possible that the family had experienced financial issues towards the end of the imperial dynasty in late 19th century to early 20th century. The stagnation trend of the rural economy and the market scarcity of building materials in the late Qing period could also have contributed to favour a lower budget construction[6].

I walked around the courtyard towards an open doorway on the corner that led into the central hall of the compound. (Figure 2.13) A linear Tian-jing courtyard sprawled open along the central axis of the compound. On the opposite wall of the central hall, a matching door that opened into a mirror Tian-jing similar in proportion of the one I arrived in. An octagonal threshold connected the centre axis to the back room. The interior had once been a large multi-story hall that measured about 10m in depth and 5m in width. A single door had replaced the double door on the end wall. The eastern portion of the room had been a multi-story space with high windows on three sides of the tower. The western portion of the room had two floors and a roof which sloped towards the west. Remnants of the old beam structure holds remained on the end wall, but the floor structure of the upper levels had disappeared. When

6 Lloyd E. Eastman, *Family, Fields, and Ancestors : Constancy and Change in China's Social and Economic History, 1550-1949* (New York: Oxford University Press, 1988).

Figure 2.14 *Intact octagonal ceiling finish within the tower of the Perpetual Progeny Hall, windows on three sides of the tower*

I looked above, it amazed me to see a largely intact octagonal ceiling finish beneath the pitched roof. (Figure 2.14) This particular moment elicit within me a spasm of melancholy at discovering genuine cultural relic at the precipice of oblivion.

The double that led to the rear courtyard had been locked shut, and I backtracked towards the central axis of the Shaozi Hall. It appeared that a solid grey brick division wall interrupted the central Tian-jing space; they could have created the physical division to divide the public and the private spheres of the compound. Symmetrical doors and windows flanked the two sides of the Tian-jing courtyard. Unlike the division wall, theses side walls comprised of a mixture of mud-brick composition piled on top of a grey-brick base. Although the overall plans of the compounds like the Greater Teaching Hall and Perpetual Progeny Hall orient east west, the main chambers in the compound take advantage of the linear Tian-jing opening to rotate its axis to orient south-north. The Tian-jing courtyards are not only an environmental device but also an architectural solution for planimetric and spatial limitation. Another small linear Tian-jing courtyard with symmetrical octagonal doors on two sides of the drainage sink laid beyond the solid division wall. Both octagonal doors were locked, but one had a small gap at its closure, it appeared to have become storage for large bulky objects. The lattice wood frame around

Figure 2.15 *View of the central Tian-jing courtyard with two octagonal side doors from western main entrance of the Perpetual Progeny Hall*

the roof eaves were in excellent condition, its existence retained a sense of elegance for the unfurnished space. (Figure 2.15) The large double doors at the west end of the hall opened up to a rectangular courtyard and the back of door-gate building. The door frame and lintel of the door gate comprised of solid granite, the material signified the wealth of the master of Shaozi Hall, but its height and single-door span conveyed the non-political social status of the household[7]. At that moment, I had realized that I had travelled through the entirety of Perpetual Progeny Hall backwards in a servant's perspective. It was a revealing experience to discover a hidden piece of heritage architecture by noticing cracks along its weathered camouflaged façade on the street-side. The revelation reminded me one of the old Chinese wisdoms: *Keep wealth hidden within*.[8] In comparison to the other compounds in the same village, the Shaozi Hall held the lowest profile on the exterior and retained the best interior condition of all four compounds.

In the front yard, I encountered a concrete house erected along the northern periphery of the courtyard. (Figure 2.16) The new construction protruded beyond the walls of the original façade and blocked the parallel gate houses of the two halls from direct view. The reason behind building a new house beyond the existing façade may have arisen from the desire to gain floor area without further destruction of the inner organization

7 In imperial China, the orientation, magnitude and height of the main door was strictly determined by one's social and political status. To make the wrong door could mean legal insubordination against the social order and would lead to potential capital punishment and family ruin.

8 财不外露

Figure 2.16 *Entrance courtyard facade of the Perpetual Progeny Hall*

of the old architecture. Or the conspicuous desire to have one's home to stand out beyond the poverty of the recent past.

I backtracked into the courtyard and followed a few chickens into a doorway on the southern corner of the main compound façade. The threshold led to a narrow alleyway that ran between the building and the outer protection walls. Most of the standing outer structural walls and major division structures were made of solid grey-brick while the rest of the building varies in construction. The center solid wall and select parts of the building built at a higher building standard suggested that the compound could have be built upon an older building, or have been divided from a portion of the Greater Teaching Hall. Perhaps, the owner simply wanted a superficial shell of affluence to appear on the outer visible portions of the architecture, thus the higher quality materials appeared on the façade while inferior materials filled in the invisible portions of the compound.

A small external structure of the protective wall appeared unkempt and chickens had made homes in the outhouse, the interstitial spaces between the wall and the compound. Through one of the windows I could see into the southern octagonal door chamber. The room had been used for funeral services storage; it saddened me to see coffins being hidden within abandoned heritage architecture. I continued along the path along the southern façade, and reached the open drainage pool to the south of

Figure 2.17 *Rear view of the last occupied chamber of the hall*

Figure 2.18 *Collapsed southern Tian-jing*

the central tower room. Although much of the original lattice window of the southern wing had been damaged, this is the suite in which the last occupant of the massive compound resides in. (Figure 2.17) It was the same room that I first came upon in the rear courtyard near the back entrance. The western side of the Tian-jing had been partially removed, the missing portion showed that the top section and the bottom of the tower did not match in material. (Figure 2.18) Two possible rationales might explain this phenomenon: either the builder intended for the structural material of the tower to be hidden behind the interior of a chamber that should have previously existed on the lower level in order to save building costs. Or the sub-par material of the tower had been scavenged from other parts of the compound or village in order to repair broken parts of the tower or infill a wall that previously connected to a lower level chamber.

I treaded to the narrow exit in the back with a heavy heart. Why is this place empty? Did people find the architecture no longer hospitable? The interior was quite airy and cool: it was just as comfortable as an air-conditioned room in a modern apartment in that particular hot summer day. Perhaps the lacks of modern drainage necessities had discouraged those who became used to modern standards? Or is it that people lack the funds to restore the fallen parts? Perhaps people had simply moved to the urban areas for better social services and career options. Whatever the reason, the architecture had fallen into ruin after the an extended

period of abuse and neglect; it had survived into a day and age in which the handicraft and material was no longer the standard and accessible for those who belong or live here; It was cheaper and more efficient for residents of the village to build newer housing with modern cast concert and sewage lines.

Songcui Hall: Pine Jade Hall (松翠堂)

From the village road, I took a path along the east side of the largest grey-brick façade in the village. I stood on top of the small winding path and looked down the small hill, the building extended into the landscape to the south. (Figure 2.20) On the other side of the field was a long yellow-brick facade hidden behind a string of new constructions. At a first glance, it appeared to be an undistinguished cluster of rural houses, yet after a momentary observation, I realized that all those houses were built onto the façade of an existing structure. The practice had been repeated enough that only a hint of the former building remained. The cluster of the building must be the Pine Jade Hall, the last to be constructed of the four halls. The hall was documented to be built in early 20th century, the late imperial or early republican period[9]. Judging from the surviving yellow-mud façade, it seemed that the family could no longer afford grey-brick construction on the outside of the compound by the time of construction of the new households.

9 Li, *Historical Architectural Map of Hunan*

Figure 2.19 *Pine Jade Hall Facade, from Hunan Heritage Architecture, 2015*

Figure 2.20 *Standing next to the Family Teaching Hall with the Pine Jade Hall Facade in the distance*
May, 2019

Jiaxun Hall: Family Teaching Hall (家训堂)

I treaded down the path, following the outline of the compound façade. Only a fewer modern constructions latched onto the exterior façade of the Family Teaching Hall in comparison to the neighbour to the south. It is possible that the superior quality of the grey-brick façade construction better provided better protection on the outer façade and discouraged residents to rebuild over the existing building. I walked around the corner and gazed upon the southernmost façade of the main house. Most of the doors including the new houses along the façade were left open, and some had wooden fences in front to prevent small livestock from wondering inside.

I entered the first stone gate on the eastern-most corner of the main façade. As I approached the doorway, a repugnant smell of livestock assaulted my senses. The linear Tian-jing sink in the center of the courtyard was completely filled in with waste. The temperature in the interior felt no different from the heat outside the walls. Chickens bobbled around, casually walking along the breezeway and into the open chambers. The whole courtyard had become a chicken pen; the rooms that had likely once housed people had degraded to house livestock. One

Figure 2.21 *Panorama of the Family Teaching Hall, May 2019*

of the stairs to the second level had completely collapsed while the other was in a dangerous condition and I was in fear of it's collapsing at any moment. There were chicken everywhere, in the rooms, on the rooftops of additional structure, and between the crevices. (Figure 2.22) The wall toward the inside of the compound had been terribly weathered, and the roof section was missing altogether. Near the entrance by the stone doorway, a small corridor led into a dead end with a small 2x2m sky-well, a number of doors surrounded this small entrance space, and the smell of the chicken held pungent in the air. A matching doorway stood on the other end of the southern façade of the Family Teaching Hall. When I stood by the doorway, I smelled the familiar scent of chicken feces, the interior scene resembled the other in its unkept state, and my recent trauma prevented me from venturing inside. Perhaps this is the same scene after Romans left Rome, men farmed cattle in the Colosseum and the Roman Forum, and the earth and wind brought dirt and sediment to deposit in the Pantheon and the temples of gods. As I stepped across the chicken dropping, brick pieces and tile scrapes, I lamented the loss of a time forgotten.

Small footpaths for the rice paddies led from the compound yard criss-crossed into the field, and I walked around the small plot of the rice paddy in front of the compound. (Figure 2.21) Two residents worked in the flooded field laid a metre below the ground level. The architecture set upon a stone platform that aided drainage of grey-water from the Tian-

Figure 2.22 *Side wing of the Family Teaching Hall, occupied by chickens*

jing into the water channels for the fields surrounding the compound. Much of the stone tracery windows had disappeared from the façade, empty windows sockets sat in the absence of the frames. Little attempts were made to replace the tracery frames, some thresholds were covered solid to prevent structural collapse of the deteriorating roof structure above. Large text "Vanguard production team" took the place of the original fortuitous header over the door lintel. For large compounds in the countryside, the people could be divided into different production units. In Yinjiatang (Journal 5), a compound with seventy household were divided into four product units. If different parts of the compound, each with its own entrance held different management, it would explain the varying state of preservation of the architecture. The front yard of Family Teaching Hall appeared larger than the Higher Teaching Hall, but the new home constructions grow more intrusively to the original architecture.

The interior of the center hall in the main building felt similar in proportion and design with that of the Higher Teaching Hall. The side wings and secondary Tian-jings subsisted in a crumbling state; odd constructions encroached within and around the old courtyards and overgrew like wild weeds. Coffins once again lined the walls of the entrance. (Figure 2.23) The only hint of previous affluence are the anecdotal wood cravings on the support beams along the front porch, and a Bagua Yin-yang circle below the stone lintel and two stone cravings of Taoist warrior on the two support columns stood guarding the main door.


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Figure 2.23 *Family Teaching Hall central Tian-jing in the ancestral hall, view looking south*

(Figure 2.24) The old symbols offered protection in crossing between the world of men and the hall of Ancestors.

A notice board on the outside wall specified the four buildings under the provincial heritage protection under the Xiang (Hunan) government act 21 in 2011. The villagers can't alter any part of the architecture without planning application. The notice suggests that since the building lacked proper maintenance, the government graded certain parts as class C and D danger buildings. They advised villagers to high levels of caution should they continue occupation within those buildings. Those who wish to restore the buildings shall apply their plans for approval before action. The new restoration should best fit to the style and texture of the original architecture.

(Endnotes)

i The two brothers each built two halls for themselves and their descendants. The Great Teaching Hall (伟训堂) and the Perpetual Progeny Hall (绍子堂) built by Zhu Yafeng. Zhu Yafeng (朱雁峰), third tier minister in the imperial administration under Qing Emperor Xiangfeng. The Family Teaching Hall (家训堂) and the Pine Jade Hall (松翠堂) built by Zhu Yingxi. Zhu Yingxi (朱膺锡), fifth tier minister in the imperial administration under Qing Emperor Xiangfeng

Figure 2.24 *Family Teaching Hall gates, looking south from the front courtyard towards Pine Jade Hall*

May 2, 2019 Travel Observation

Yuetang County, Shuangfeng Township, Loudi City, Hunan

When I returned from Rome in the winter of 2017, I excitedly described the baroque European palaces and old aristocratic villas of Italy to my family as I was being driven home. In turn, my father preached to me about the old architecture of southern China in light of my recent interest in complex castles and estates. He spoke to me about a country estate that sprawled out from collections of small skywells courtyards across the rice paddies fields of Hunan that once belonged to my grandmother's family, an estate of eighty-eight Tian-jing. When I returned to China to visit my ailing grandfather in in the summer after my undergraduate program, my grandmother – one of the last people alive to remember, now that my grandfather no longer remembers – told me of a childhood of growing up in a castle of a hundred and eight Tian-jings.

I planned to seek out traces of this mythical compound that once existed in the countryside of Loudi City, in Yutang County. I jumped on the opportunity to visit Yutang when grandmother was invited to attend a wedding in a nearby village in Yuetang on the 2nd of May. On the way to Yutang village, we stopped by the village to pick up some apples as gifts. We drove along the county road and made a turn into fresh paved village road. Father exclaimed "road to every village!" to remark the difference in travelling on yellow mud paths of rural Hunan his youth. The narrow drive ran between rice fields, the car flew by the green pasture toward grandmother's childhood home that was no more.

We arrived at a peninsula surrounded by water ponds in the middle of a large plain of rice paddy fields. Three country houses stood in the middle of the dry land, one of which had an older looking section attached to the rear. The majority of the original house has been torn down and only a small section remains in the back of a two storey poured-concrete country house. (Figure 3.1) The back portion of the old house appeared to be in good condition, the single-story half-pitched roof holding strong with the original wooden windows and doors. Grandmother joyously greeted her old neighbours that she hadn't seen for many years as soon as they recognized her from the car. I was invited to sit and handed a thin cup of tea with a wisp of leaves and a plate of fresh peanuts. Me and

father made some polite small talk and took off to explore around the area.

I walked around the back towards the old house. A small water channel runs along the length of the back wall, a typical attribute of rural houses in Hunan. (Figure 3.2) The wood frame windows are aged but sturdy, and the openings are covered with a layer of insect mesh on the outside. The house no longer belonged to grandmother after her step-mother passed away, it was sold to the local production cadre after her marriage to grandfather in 1966. I climbed the small hill behind the house, and saw the large irrigation pond in the back. Father recalled fishing in the pond during his visits as a young boy. A woman was prodding the pond with a long fishing rod, she stood in the water with a high rubber boots, recognizing my father as we approached. She made a loud startling call out to us. After politely inquiring about the village, she responded "same old, same old," and again about the fields, "same old, same old." We supposed no news is good news.

I followed the small path and walked around towards the front of the buildings. A river channel ran parallel to the right of the path. Lush green plants grew by the side of the river. Another woman was planting rigorously by the banks; father observed and concluded that the

Figure 3.1 *Left: side facade of a traditional farm house with modern addition*

Figure 3.2 *Right: rear view of the traditional farm house*

sprouts were peanuts. A footbridge connected the houses to the plain of rice paddy fields on the other side of the river. One of the handrails on bridge was missing. The absent handrail has probably been washed away by the recent great flood of the preceding year. I was impressed by the woman's perseverance to plant by the river banks despite the obvious risk of flooding. Father explained to me that Hunan people are obstinate, and it is perhaps the very reason that the people of the led the change to alter the fate of the Chinese people in the 20th century[1].

I returned to the house to ask the neighbors whether they knew of a compound in Yutang that contained a hundred and eight Tian-jings, but none of them had a single clue of my inquiry. My grandmother lived in the compound when she was a young child, she remembered playing hide and seek in the compound and never catching anyone on days on end. Grandmother was forced to move to Hubei after the death of her mother in her youth. The Land Reform movement appropriated the compound for public use in early 1950s. The government converted the building into a public commune during the early days of the Great Leap Forward movement between 1958-1962. Grandmother returned from Hubei and lived with her step-mother during this period. She recalled surviving through the *natural disaster* years because her step-mother was a cook who held the ladle at the public kitchen. She did not want to divulge further into that period of her life and simply commented that the home of her childhood deteriorated before her eyes. The architecture of the great compound was torn down during the early days of the Cultural Revolution. Today, there is neither a single trace of physical evidence nor collective memory to honor its former existence in Yutang County.

Although the locals did not remember the compound that once stood nearby, they advised me to go visit the former residence of Zeng Guofan, Marquis of valor, Governor of the two rivers, and General of the Xiang army during the late Qing dynasty. His former Marquis manor is situated about 70km away from Yutang by the county road.

As we drove grandmother to the neighboring village, we passed by two funeral progressions and a wedding palanquin. The 2nd of May – or 28th day of March – was not a fortuitous day for burials nor weddings according to the lunar calendar. Perhaps the rural people no longer obey by the old rules, or the modern national holiday timeline gave people

1 Joseph Esherick, *Reform and Revolution in China : The 1911 Revolution in Hunan and Hubei* (Berkeley; Berkeley : University of California Press, C1976: University of California Press, 1976).

less reasons to observe the lunar calendar. We dropped off grandma at a house on the high grounds of a valley. The family had hired a wedding company to arrange the occasion. A large inflatable wedding arch was set up by the entrance of the path uphill, and loud speakers could be heard from miles away, it was very easy for us to spot which house was hosting a wedding. It was customary in Chinese culture to spread the happiness on significant life events with anyone in the neighborhood.

We couldn't stay at the wedding reception for lunch, we hurried off south towards the former residence to gain daylight. Although no major expressway runs between the two rural locations, the county road allows for 60km/hr, the traffic should be smooth should there be no overload line of grain trucks along the way. The fields along the way average between small patches of fields between 1-2mu[2], with small clusters of houses scattered between the surrounding hills. We passed a few larger settlements that acted as trading posts for the rural residents along the way. The towns hustled and bustled with small businesses of all types of goods and services, which indicated the modest level of transportation and economic affluence of the county. We stopped at a small noodle restaurant that sold regional spicy noodles for ¥10 in the nearest town before the Zeng Former Residence due to the scarcity of available options just the day before. It turned out that an abundance of family restaurants took advantage of the national protection site to operate their business. A long line of vehicles lined up in the shade along the single lane road near the former residence. Restaurants owners swarmed up to the passing visitors to call for businesses. Numerous vendors also set up shop to sell published texts and letters authored by the former general, who was a prolific writer and theorist on neo-Confucianism. His teaching, philosophical writing and letters influenced many late-Qing military generals, numerous early Republic revolutionaries, and inspired both Chiang Kai-shek of the Nationalist Party and Mao Tze-dung of the Communist Party. Moreover, Liang Qichao, one of the foremost propagators of modernist reform in late 19th century, greatly admired Zeng and his school of thought. Liang's son, Liang Sichen, is one of the first American educated modern Chinese architects, whose writing and publications on traditional Chinese architecture are the foundation of heritage architecture protection and education in China today.

2 Mu is the traditional Chinese unit of land. Each Mou is about 0.165 acre or 666.5 m^2. ("Mou, Chinese Unit of Measure," , https://www.britannica.com/science/mou.)

Zeng Guofan Former Residence

Heye Village, Shuangfeng Township, Loudi City, Hunan

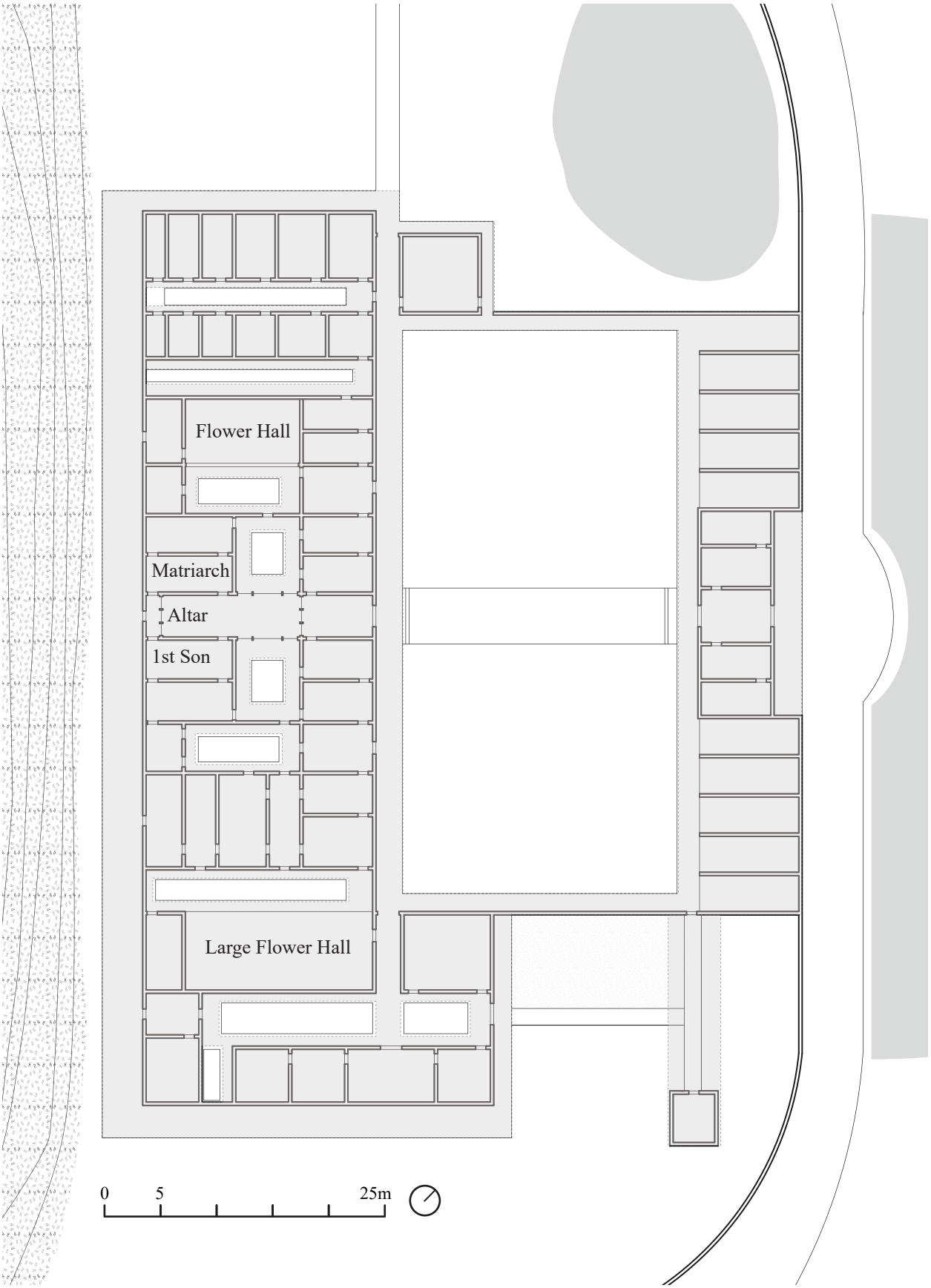
The Zeng Guofan Former Residence orients towards the east, the site sits beneath an adjacent hill that embraces the main architecture on three sides. A half-moon lotus pond equal to the size of the building site cradles the front façade, a channel connects the half-moon pond to a larger body of flowing water across the great plain in front of the compound. (Figure 3.3) A walkway runs around the crescent pond to divide the designed water space from the natural lake. Stones steps are laid out in the water from the walkway to a small pavilion in the middle of the lake. Although the lake level flooded higher than the intended walking depth at the time, children joyously jumped onto the steps in the water amidst the warming yells from their parents.

The second of May was a busy day for the site, hordes of tourists came to take advantage of the Labor day holiday to visit a national heritage site. The Zeng Guofan Former Residence had become one of the most well-known and best maintained historic architecture in Hunan due to its continuous occupation since the founding of People's Republic of China. Multiple levels of government used the estate for an extended period after the vacation of the Zeng family, and the extended employment provided regular maintenance to the architecture.

The south façade is made of two different designs of grey-brick wall. The first design consists of solid grey-brick with a small pitched roof

Figure 3.3 *Lower: East View of Zeng Guofan Former Residence - Fuhou Hall from half-moon pond*

Figure 3.4 *Right: Plan of Zeng Guofan Former Residence - Fuhou Hall*


Flower Hall
Matriarch
Altar
1st Son
Large Flower Hall
0
5
25m

for rain protection. The second design consists of an upper section with recessed regions of plastered blocks reserved for fresco wall paintings, a middle section of a string of water peep holes above a line of architrave, and a lower section of solid grey-brick wall. The peep holes allows for drainage of the stable roof on the inside of the façade. The restored façade left the frieze slots as white; there may have been paintings of folklore or anecdotal stories of the general on the façade in the past.

The door gate at the center of the façade features an uncharacteristic single door, as oppose to the standard double door like those of the Li, Zhu or Zhang compound. The main gate takes up a significant proportion, between 1/5 to 1/7th , of the façade, its height and magnitude strongly suggests the high political and social status of the original master. It is possible that the original door has been modified or diminished in order to reduce the status quo from the architecture since the fall of the imperial dynasty.

In comparison to the residential compound type or village type Tian-jing compounds, the Zeng former residence adopts an open exterior courtyard of the northern style. The front entrance introduces the passengers to the center of a large rectangular courtyard. (Figure 3.5) The unusual size of the courtyard highly suggests imperial influence on the architecture from Zeng's political stint in the forbidden palace. A stone

Figure 3.5 *Aerial view of the former Zeng Marquis Palace from the south. From National Architecture Institutde of china*

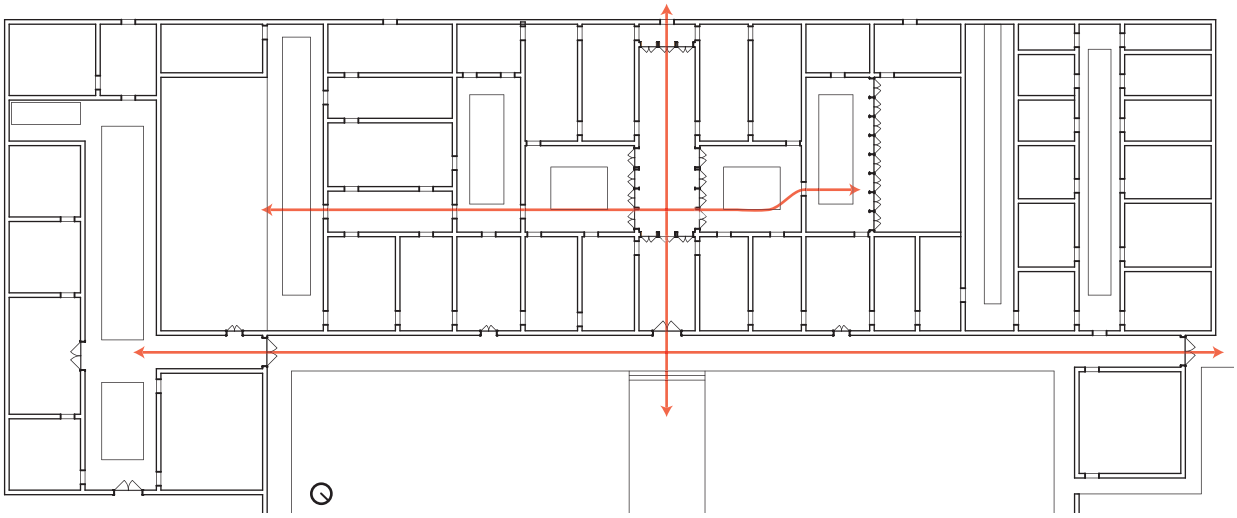


Figure 3.6 *Latitutional axis across the compound*

path divides the rectangular courtyards into two equal square lawns, the path leads passengers directly toward the central threshold of the main house and the official audience chamber in the rear.

An arcade wraps around the peripheral of the great courtyard. A number of visitors took refuge from the midday sun on the benches along the southern façade, and children ran along and around the courtyard through the length of the arcade. The open chambers along the south façade once functioned as the stables for horses and storage for palanquins. Life size palanquin models are on display to show the transportation vehicles used for different altitudes of social events. The master and matriarch of the house held different social standing and were subjected to different level of service and carriage in public. The stable houses use natural ventilation through its open threshold and circulated cool air from the ground level to its high ceiling.

I walked along the southern arcade toward the southern garden. An additional breezeway connects the path beyond the walls of the main courtyard to an outhouse near the edge of south-western façade. The outhouse currently functions as the public toilet for the site. However, its position at the corner of the overall site and its exclusion from the rest of the architecture suggest that the building, if it existed previously, could have served a similar function. A small informal gate set adjacent to the toilet, which could allow the night soil to be carried out of the compound discreetly by servants during the age without modern plumbing[3].

The southern-most section of the compound is built with mixed construction: two lower stories in brick masonry construction and the

3 The night soil of the Forbidden City had to be carried manually out of the Imperial City through the "Water" gate by the Yongle Palace.

Figure 3.7 *Left: Southern apartments from southern courtyard*

Figure 3.8 *Right: Southern apartments double Tian-jing*

top level in wood structure. (Figure 3.7) A modest threshold connects the southern garden to the linear Tian-jing courtyard on the shortest edge. (Figure 3.8) The building on the southern side of the courtyard consists of a set of stand-alone apartment suite with a central audience chamber and guest rooms on each side. The upper levels of the apartment previously held the private collections of texts and books of the General. The southern bedroom on the ground floor has access to an interior Tian-jing that introduces additional filtered light through the lattice windows from the first floor. The interior Tian-jing also functions as a content elevator to move literary articles between the floors for perusal and storage. According to the caption in the chamber, the last Zeng family occupant of the suite was the granddaughter of Zeng Guofan before her departure to England for western education. The southern apartment is specially separated from the rest of the compound; only one corridor connects the courtyard to the main house through a gated threshold. The linear Tian-jing provides a special and architectural break between the apartment and the Large Flower Hall immediately to the north. If desired, the courtyard could be closed off easily to function as an independent household within the larger estate. It is possible that this part of the estate had been reserved

for unmarried children or grandchildren of Zeng before their change in household.

The room to the right side of the Tian-jing courtyard had once been the study of the second son of Zeng. Another study stands on the north side of the compound that matches the southern one symmetrically in plan but not in elevation. Both the south and north studies and the southern apartment are structurally detached from the main compound for fire safety reasons. The room on the end of the southern courtyard is not open for exhibit, but on plan it is drawn as a narrow ante chamber with connection to a large room and contains a discreet exit to the back of the compound. There were a few similar rooms in the compound, usually built adjacent to the Tian-jing and the exterior façade, such rooms were often used for service such as kitchen or servant's courters.

A small passage connects the southern courtyard to the arcade around the front yard. It is one of two transverse accesses that connect the entire compound from one end to another. (Figure 3.6)The second path connects the interior chambers between the two large multi-purpose halls at each end of the main building. The Large Flower Hall (大花厅) measures approx. 5m x 15m, it is a multi-story open space directly

Figure 3.9 *Large Flower Hall, octagonal window on the eastern end of Tian-jing*

Figure 3.10 *Left: View from the south of the Tian-jing to the south of the central axis*

Figure 3.11 *Right: View from the south of the Tian-jing to the north of the central axis*

connected to the adjacent linear Tian-jing. (Figure 3.9) The interior ceiling height measures between two stories to three stories at the highest point of the pitched roof. A kitchen is attached to the western back end of the courtyard. An octagonal window sits on the south-eastern wall at the front of the Tian-jing. The host inside the space could easily see guests arriving from the main gate through the strategic window.

The Tian-jing courtyards within the main compound function both as exterior spaces within the larger compound and as transportation hubs for the adjacent chambers. (Figure 3.10) All of the chambers have direct light access, and almost all of the rooms have windows on two sides. All the chambers are well-connected with each other through either internal thresholds or through exterior corridors or Tian-jing courtyards. None of the guestrooms or bedroom chambers on the ground floor has direct stairs to the upper level. It is likely that the vertical circulation was reserved for the specific transportation rooms adjacent the Tian-jings near the back façade of the compound. The physical separation between the levels likely arose from the intended social separation between guests and masters. The second floor chambers are largely disconnected to the ground level but are linked together through upper level interior access

Figure 3.12 *Left: View from the east of the Small Flower Hall Tian-jing*

Figure 3.13 *Right: View from the east of the store houses Tian-jing*

and bridge connections above the Tian-jing courtyards. (Figure 3.11) Zeng Guo lived during a time in China that respected men of power were expected to have multiple concubines in additional to their legal wife. The general did not follow the social customs and lived with a less complicated household. Although Zeng Guofan had no need for extra chambers for woman, he kept large groups of in-house advisors and political guests that often lived in the house for extended periods between months to years. The Zeng former Residence functioned beyond a standard family estate of an imperial aristocrat but more so of a political think tank for a military general.

The central hall of the main house is unique in the Tian-jing compound typology that there is no Tian-jing along the central axis. The plan of the compound is largely mirrored along the central axis. The main difference lays in that the difference between the southern apartment and north-western wing, the least favorable orientation for residence, is built as store houses for grain, farming equipment and servant's residences on the upper levels. (Figure 3.13)

Zeng and his wife Ouyang built a stand-alone cottage on the northern edge of the property after the death of Zeng's father in 1857.

Zeng spend a year in mourning and reflection as custom suggested of the Confucian ideal of filial piety. The architecture is modest in magnitude and follows the plan of a standard rural house in Hunan. The plan consists of a middle threshold to a main living room with worship alter at the center, and side wings with bedrooms and studies. The main advantage of the architecture is the pitched roof with extended eaves that allows for an exterior arcade that wraps around the building. Since the building does not have any enclosure insulation or surface rain protection system, the extended eaves performs as the architecture rain protection for the structural brick wall. The private cottage stands halfway up the hill overlooking the lake and the fields below. A stone paved trail brings the hiker along a semicircular protection wall built across the height of the mountain. The portion of the wall near the compound is comprised of solid masonry, the upper section near the top and rear of the property is made of rammed earth. The stone trail adjacent to the semi-circular protection gates takes the hiker around the two pagoda pavilions in the landscaped back forest and eventually arrives at the southern side of the site. A second trail takes the hider back towards the cottage on a leveled trail behind the retaining wall of the compound architecture. The gentle rise of the steps granted me a relaxing hike around the back hill. I saw see the roof structure and the Tian-jing openings through gaps between the curtain of tree branches.

The compound had received protection as government office under the various governments through the Republic age between 1911-1949 and the new communist China after 1949. Many of Zeng's descendants entered the political scene after the collapse of the imperial empire, some aligned with the nationalist and some with the communists, and each side achieved considerable status within their respective parties. Many of the Nationalist descendants now live in Taiwan, and they have visited their ancestral home since Taiwan and China normalized relations in the early 1990s[4]. The descendants of Zeng had organized many literary meetings at the compound to celebrate their heritage and raise awareness of culture and tradition. Their cumulative efforts may have been one of the motivators to prompt the site to be conserved under provincial heritage protection in 1996 and receive official funding for restoration.

Since the site had been renovated for public education purpose

4 1992 consensus between the two political bodies, "*China-Taiwan Relations,"* last modified October 4, https://www.cfr.org/backgrounder/china-taiwan-relations.

museum, many chambers had been cleared in furnishing and replaced with educational posters on the walls. The educational boards outlined the various historic events relating to those who lived in the architecture. Although the curation attempts to represent the original lifestyle within the compound through text-based information, the significance and ingenuity of the architecture is not brought to attention but hidden away behind the exhibition methods. The curation attempts to represent a sense of domestic life by furnishing the chambers with a few pieces of classical Chinese furniture to replicate the imperialist lifestyle. However, exhibition neglects that the architecture is a living organism that have lived through different regimes and authorities. The Zeng Former Residence evolved from a private estate to government offices and to a public museum within the course of a hundred years. It is a tragedy that little emphasis was made to remind the visitor that such architecture is still functional and relatable in modern society.

Before my departure, I took a walk about the half-moon pond around the eastern façade. The lily ponds had sprouted on the surface of the lake. The water level was slightly higher than the discreet path, and children ran along the ankle deep water towards the small lake pavilion. In a few weeks the entire lake would be covered with lotus leaves, and soon after the pavilion would stand amidst a sea of lotus flowers.

Figure 3.14 *View from the cottage on the hill of the private pavilion within the compound walls, the half-moon pond, and the landscape beyond*

May 3rd Travel Observations

From Xiangxiang, we took the Lukun national (east-west) expressway then the Xuguang national (south-north) expressway towards Yueyang. We got off the expressway at roughly 35km away from Yueyang and drove east onto a freshly paved county road. The red earth near the new avenue was turned over, waiting for further landscaping. Many commercial or urban development had yet to open along the new avenue. In comparison to the more organic county roads I passed on earlier site visits, the bareness and disconnection of that particular stretch of road felt comparable to a rural highway in North America. As we approached the site, the new avenue merged with an older county road, and more organic clusters of settlements and villages began to show up along the county road.

As the fields we passed by gradually began to elevate in steps, less buildings appeared along the roads with the rise in topography. Eventually the straight path halted at the edge of the mountain and began to turn along a narrow gap between two vertical cliffs. The rest of the path appeared to have been built upon an older path that followed the available flat grounds along the topography upon the surrounding mountains.

The Zhang Guying village is situated within an oval shaped crater surround by mountains in the eastern region of Yueyang jurisdiction. Only four paths go into the valley; one from each direction. The mountainous landscape acts as a natural fort in addition to the elusive geographic formation. The remote location and the secretive access might be one of the key factors that allowed the vernacular village to survive through countless conflicts and multiples changes of dynasties for over 600 years.[i]

Vehicles jam-packed the parking near the site by the time we arrived at noon, and cars also lined along the winding slope away from the settlement. It appeared that Zhang Guying was an incredibly popular destination in comparison to the unrestored Zhu Family Compound. The proximity to urban area and magnitude of the site could be strong factors that influence the popularity of a place. Rows of pseudo-classic architecture encroached around the parking area; I feared that the site had been heavily reconstructed and commercialized like Pingyao heritage city in Shanxi, Lijiang heritage city in Yunnan, or Funghuang heritage city in

the western parts of Hunan. Some of the restored heritage towns or cities had become national tourist destinations, but the wide-spread attention inadvertently caused the degradation of local culture and gentrification of the original urban fabric[1].

A pseudo classic gate arch blocked the visitor entrance of the new main street to collect toll from the visitors. Adult tickets cost 50¥ (10CAD) and discounted student, youth, or senior tickets cost 25¥ (5CAD). We had lunch at the first restaurant right next to the entrance gates. A plethora of tourists stopped here before entering the main village; The common idea was that there won't be many opportunities for proper restaurants in the heritage site. I learned soon later that was not the case.

1 In the vast majority of "heritage" destinations across the country, small shops often sell unoriginal and ubiquitous "souvenirs" that were massed produced in the coastal areas and sold in from distributors in the Beijing Zoo or Shenzhen Dongmen market.

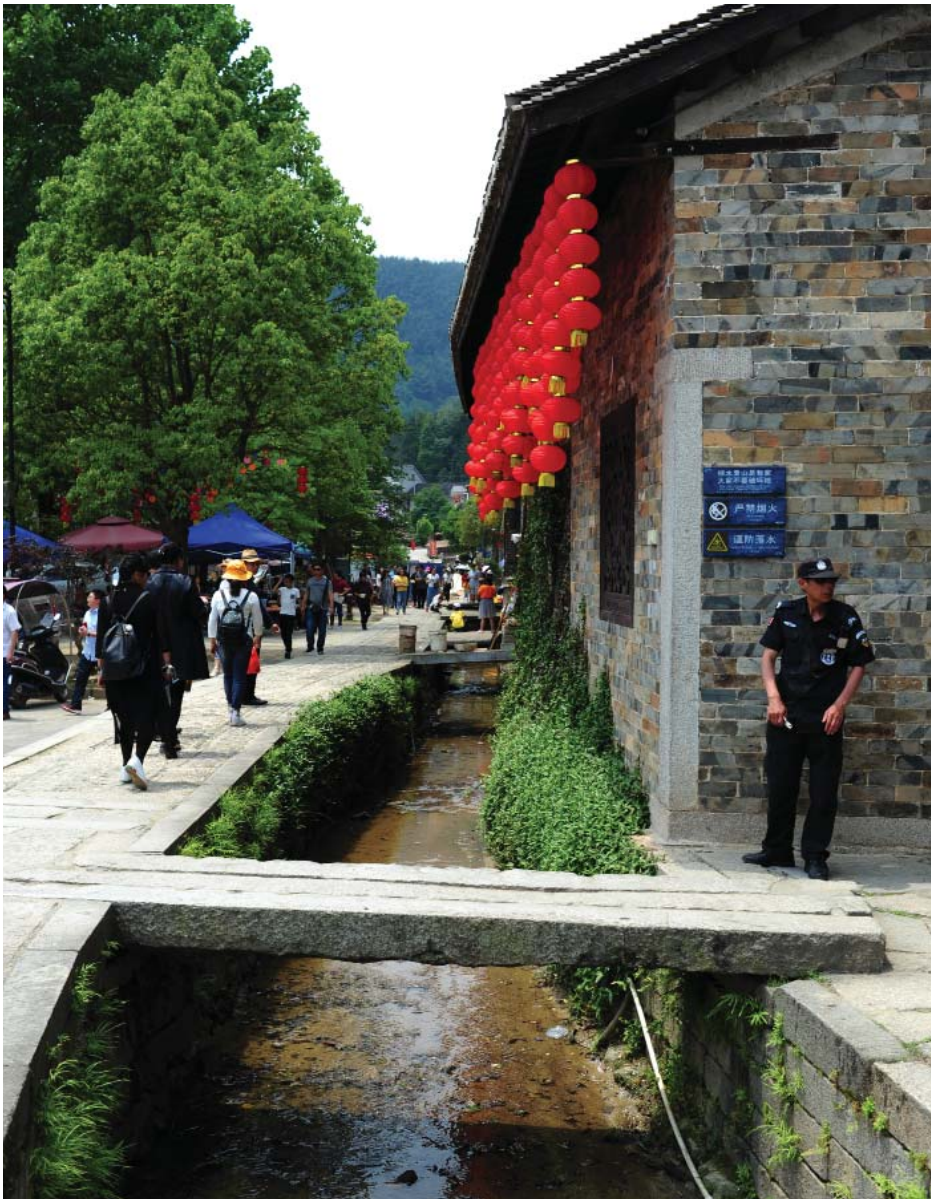


Figure 4.1 *Water stream parallel the Dang Damen facade*

Zhangguying Village, Yueyang, Hunan

The main road led towards a large pond with scattered lilies pads sprouted above the water. At the edge of the water, a large trapezoidal piazza unfolded outwards from a modest door gate with a parallel trapezoidal shape recess. A channel of stream wrapped around the perimeter of the façade, the water was clear and lively in the meter wide gap. (Figure 4.1) Two small footbridges connect the trapezoidal forum to the main entrance of the Dang Damen compound of the Zhang Guying Village. To my great surprise and amazement, the threshold showed me to a quotidian scene of festive outdoor luncheon in the shade of trees. The local people taken the tourism opportunity of their home village to arrange make shift country style diner out in the front yard and within the interior Tian-jing courtyards. There were two square fire-safety ponds on the two sides of the entrance yard, and round low dining tables were set up beneath overhanging trees. Spicy chicken, red pepper braised fish and fried tofu were the top repeating dishes around the tables. The outdoor set up resembled standard rural Hunan practice to commemorate birthdays, weddings, birth and funerals—where assemblies set up multiple tables across outdoor yards and interior halls for large scale family festivities. It was a hot day above 30°C under the mid-day sun, and the apparent temperature in the outside forum was higher with humidity. However, the spaces beneath the trees felt breezy and comfortable from the cooling effect of the fire-safety ponds.

Figure 4.2 *Zhang Guying aerial, from Jianwei Group, 2018*

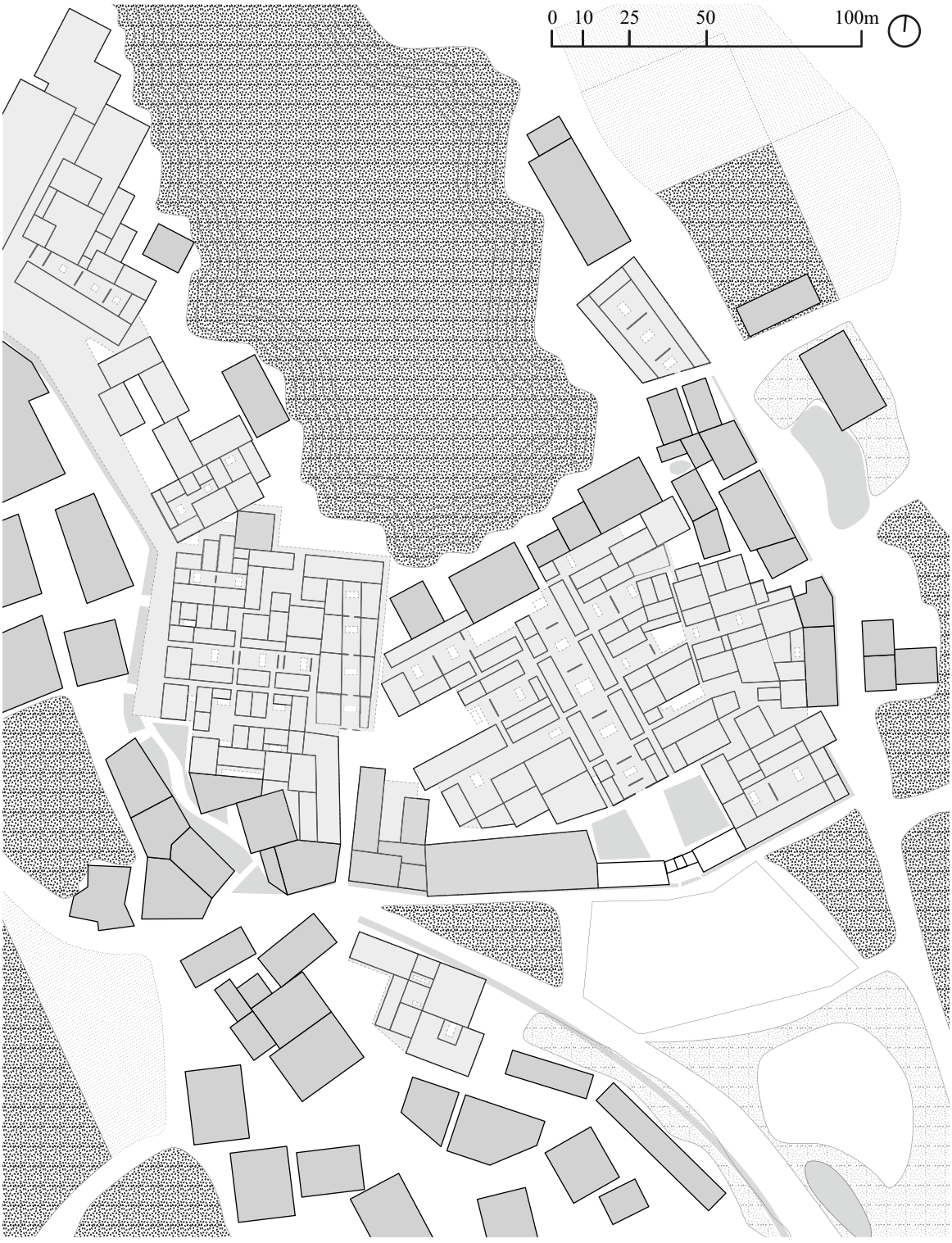


Figure 4.3 *Zhang Guying*
Plan, 1-2000 scale

A wooden vestibule stopped the traffic at the entrance of the architecture. The small division holds customary significance in traditional Chinese architecture. On day to day basis, only the side doors are generally used for passage while the center door remained closed for special occasions. Since the Dang Damen compound has became public along with the village, the center doors are now wide open for guests and residents. The interior of the first *jin* (section) appeared well preserved in original style from the ground to the roof. The structural division between different sections of the compound followed suit with the entrance vestibule, and all the subsequent center doors were wide open. A clear visual axis from the entrance threshold expanded uninterrupted towards the ancestral worship alter three Tian-jing courtyards away.

The scene in the interior of the compound appeared even livelier than the exterior yard. More dining tables were set out during the busy lunch time. Women washed dishes and cleaned meat on the raised sky-well sink platform right by the entrance vestibule. The water flowed through a drainage system that was set up before the first buildings rose more than 600 years ago in the early Ming dynasty. As I passed the threshold of the compound, I felt an immediate drop in the apparent temperature. The two stories high ceiling allowed the hot air to circulate vertically and escape from the Tian-jing in each courtyard. The eaves from the east and west roof also folded into the center and stopped above the Tian-jing sink.

The structure stands upon with a stone foundation platform, and is made of grey-brick construction on the ground floor mixed with

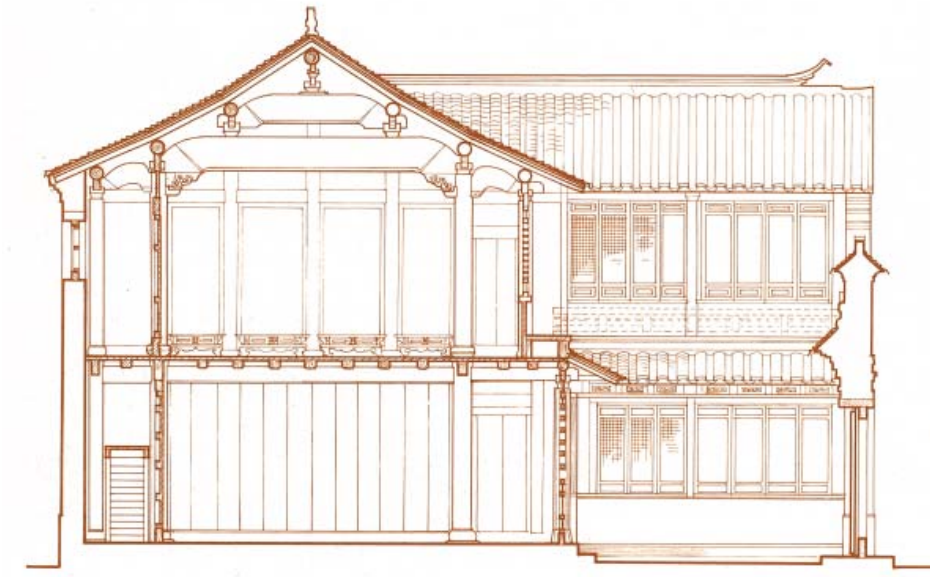


Figure 4.4 *"Schematic diagram showing the construction of a domestic house built in the Ming Dynasty in Wu County, Jiangsu" - Similar side building section to Zhang Guying Dang Damen main house, from History and development of ancient Chinese architecture, 1986, p.134*

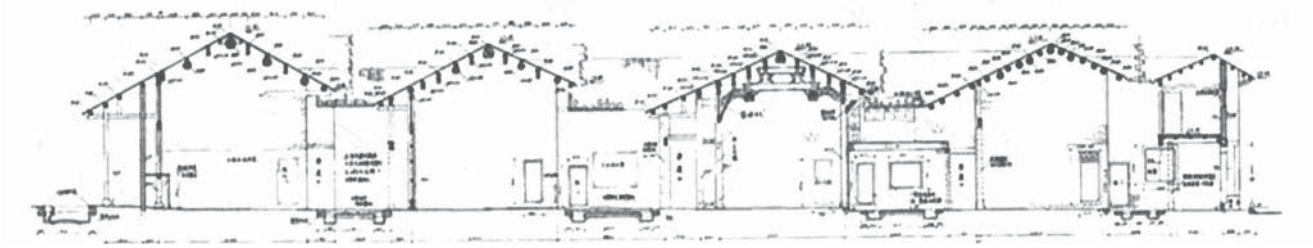


Figure 4.5 *Da Damen main house central axis cross section, from Zhang Guying, 2018, p. 189*

lumber construction on upper levels. The roof pitches on four sides near the edge of each courtyard, and sloped downwards towards the Tian-jing positioned near the sectional entrance. (Figure 4.4) The Tian-jing opens at the lowest point of floor-to-ceiling space of each courtyard. (Figure 4.5) The drainage sinks in the Dang Da men main house are not recessed openings on the ground like common practice in other Tian-jing courtyards. The main rectangular sinks contain a raised platform that matches the height of the surrounding leveled floor. Square stone tiles line the ground, and the sky-well sinks and platforms are constructed with long cuts of hard limestone.

The use of the highest grade of bricks, stone, plebian lumber and craftsmen possible in feudal China exhibited the wealth of the original construction and the subsequent maintenance of the village. The window lattice detail expressed floral and canary carving that was synonymous with the Han aesthetics during the Ming dynasty. Later addition and infill courtyards in other parts of the village were built in the Qing dynasty. The newer courtyards mimicked the original architectural module, but the detailing and aesthetics favored a more geometric approach. Although, I was a tourist in private site, the openness of the architecture and the causal behavior of the residents made me feel at ease as if I was visiting the home of an acquaintance. The doors of many rooms were left open, residents lounged outside, and people went about their day without any sort or pretention or show.

The main house of Dang Da men featured an unusual five *jin* (step or section) courtyards compound, the last *jin* no longer retained the surrounding architecture about the Tian-jing. The bronze statue of the honorable ancestor Zhang Guying sat in the last standing courtyard beneath the portrait of spiritual leader of the contemporary Chinese people, Chairman Mao Ze'dong. (Figure 4.7) A woman ran a stand in the same space; she sold selling local dried goods such as dried red peppers, radish, perilla, ginger, peach, apricots and other cooking ingredients and

Figure 4.6 *Left: view from the centre section courtyard of Dang Damen main house towards the entrance, guests eating in the Tian-jing courtyards*

Figure 4.7 *Right: view from the centre section courtyard of Dang Damen main house towards the ancestral altar and portraid of Mao Zedong. Site was busy with visitors.*

delicacies. (Figure 4.8) A man on the other side of the same courtyard offered people to visit the second level "embroidery" suites for a price of 20¥, I managed to haggle the fee to 10¥. I entered the room to the east of the ancestral altar, a room traditionally occupied by the matriarch of the house. The owner had transformed the space into a curiosity cabinet stuffed with antique furnishings. The mini museum occupied only a ground floor chamber and a side chamber on the second floor. Hundreds of articles filled the two residential spaces much like the John Soane museum in London. Old wooden frames, wooden cabinets, bowl stands, babe cribs, night soil bowls, and odd bits and bobs scattered everywhere in the room. Banners, division screens, and lattice windows frames covered the walls and standing furniture piled from the floor to the ceiling. The chaotic redundancy of function and the myriad of style suggested that most display items were scavenged from households elsewhere. The display contained window and door frames with a wide range of craving themes, from allegorical to floral to geometric, the range of distinct styles suggest that the pieces were made in different time and ages. Although the authenticity and age of the display items could not

be confirmed, I surmised that this colossal architectural maze with over 200 courtyards could have the capacity to hide a few genuine antiques through the turbulent times.

Although some locals took advantage of tourism to conduct commercial activities, the majority of the compounds were not tailored to cater to the visitors. The village remained largely organic as homes for original elderly population that had lived here all their life. The commercial success of the architecture had also induced some young people of the village to remain home and to work in the local tourism industry.

I entered the back alley through the western exit of the fourth courtyard of the main house. Some parts of the alley had been refitted with additional levels in between the original clear roof access. The addition created fire safety concerns and disturbed the original air and light access within the alleys.

Courtyards are joined through sectional divisions along the central axis in each compound. The sections are additionally connected by discreet alleyways parallel to the main house, and small corridors connected the two pathways laterally. Unlike the central path, the lateral circulation did not have any overt physical disruption like the section divisions between courtyards. The corridors act as public roads that

Figure 4.8 *Vendor set up shop in front the ancestral worship altar in the main house*

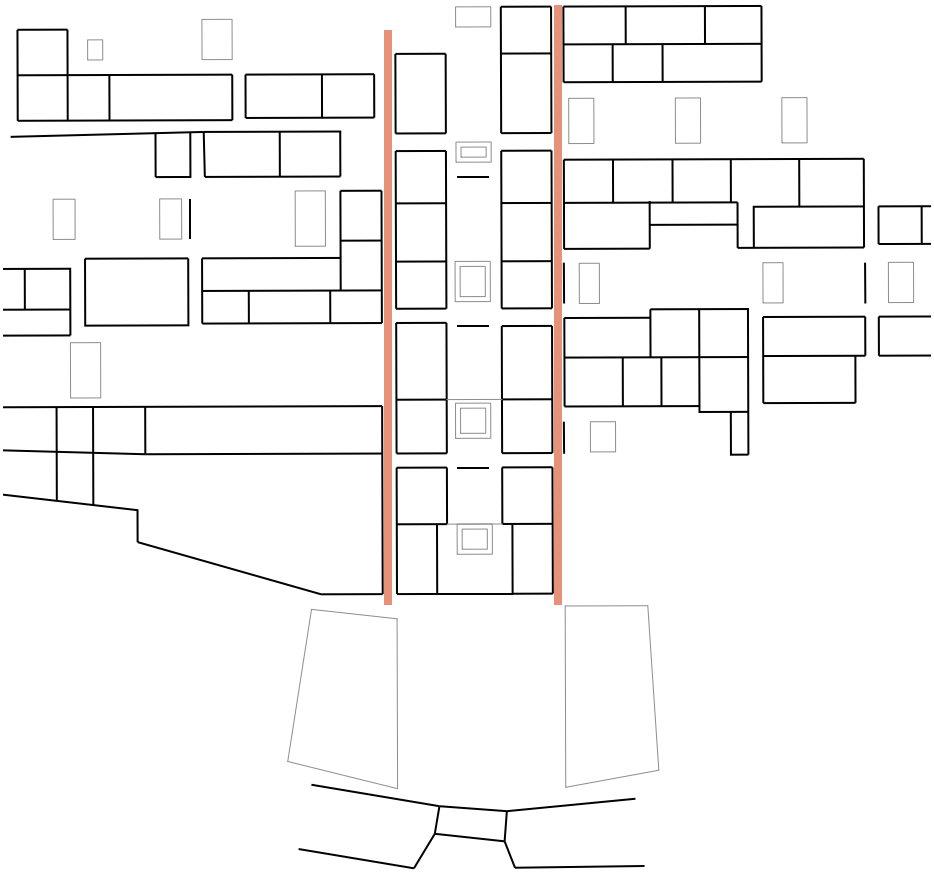


Figure 4.9 *Plan of Dang Damen main house with transverse corridors highlighted.*

allow traffic to flow through the side corridors to access neighboring courtyards houses. The transverse alleyways run across the entire length of the Dang Da Men main house. (Figure 4.9) The longitudinal access also functions as fire safety division between houses. In the event of a fire, grown men could climb up the 1.5 wide corridors to remove the roof tiles and break the connection between two houses. Although the alleyways are often damp on the ground level, the original full 2.5 stories clear height allows for upward hot air movement and provides cooling for the adjacent buildings.

I crossed the alleyway laterally and stepped into another courtyard with a similar spatial arrangement with the central household. The specific courtyard belonged to the second west branch house of the Dang Da Men compound. The branch houses are aligned east-westerly and perpendicular to the central house. The hierarchy of the chambers also aligns towards the center. The standard formation for side branches in Dang Da Men are three *jin* (steps or sections) with three Tian-jing courtyards. Unlike the center house, the branch houses tend to use the side doors instead of the center doors in sectional divisions between *jin*

or sections.

The limited uses of the center thresholds had induced many households to use the space for storage or alternative utility. Many of the drainage sinks of the branch houses varied in sizes in comparison to the consistency of magnitude of sinks in the main house. Larger drainage capacity exchanged for spatial utilities of the space, thus households attempted to construct a stone platform given the financial and material availability. A long wooden roof beam spanned at least 5m across the courtyard, it sat on two wooden holders built into each of the two adjacent walls. Throughout the remaining branches houses, section divisions and roof support were completed with full length wooden columns. Lumber of such magnitude and consistent grade was rare in residential architecture in south-east China. Lumber quality and abundance had considerably declined since late North-Song and Yuan dynasties, as result increased restrictions were imposed upon common building use[2]. Compounds with similar typology across the provinces seldom used complete sections of lumber due to the expense and limitation of the material. Although the first courtyard of the second west branch house was preserved through consistent usage and maintenance, the outer sections of the branch had disappeared completely. Protruding ricks and stones on the outer wall of the northern buildings showed evidence of the walls that once joint

2 Francis D. K. Ching 1943-, *A Global History of Architecture*, eds. Mark Jarzombek and Vikramaditya Prakash, 2nd ed. ed. (Hoboken, N.J.: Wiley, 2011).

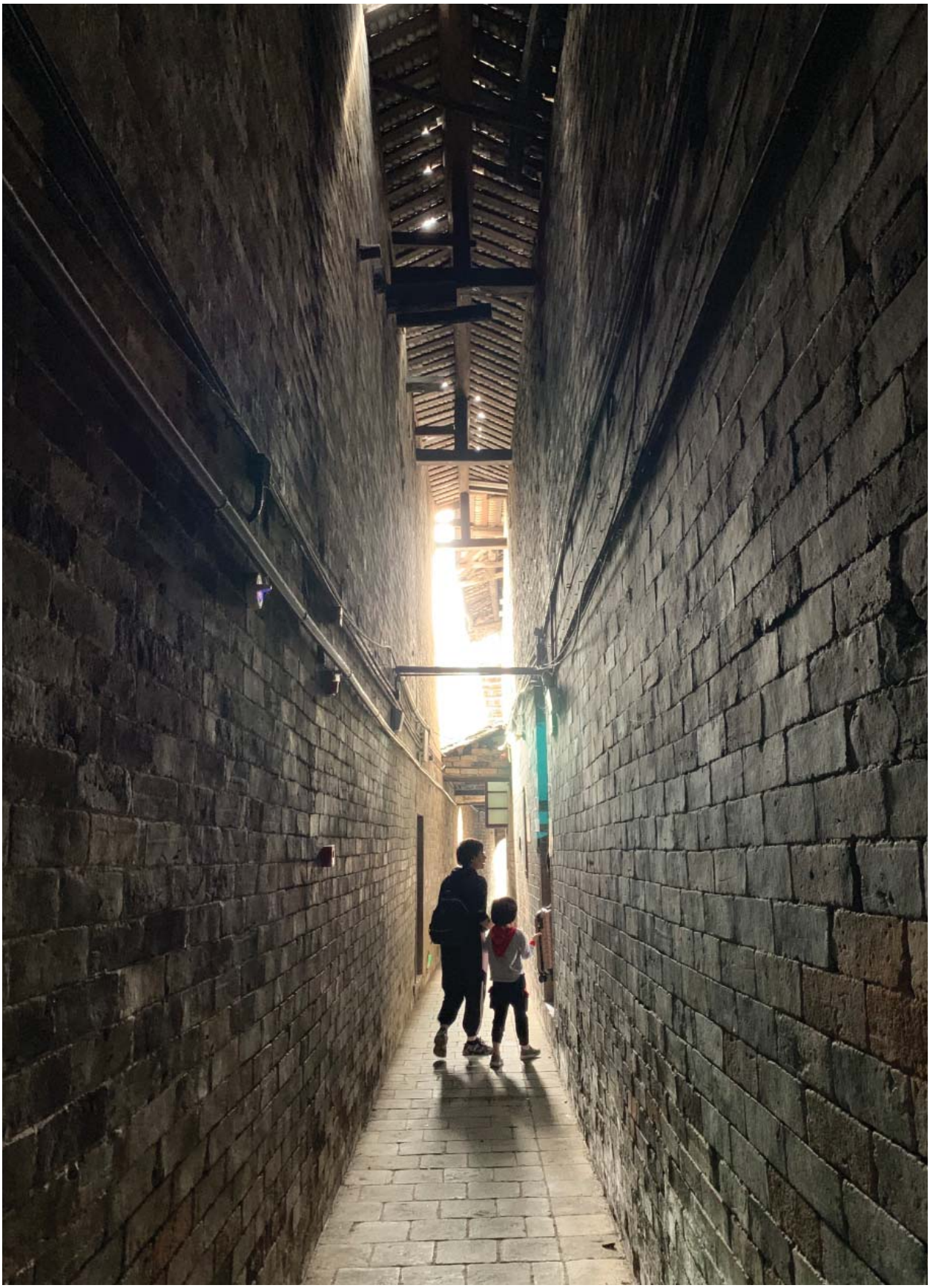
Figure 4.10 *Void space left from the deconstruction of the outer sections of the second west branch house*

together. The dip of the roof from the first courtyard sheltered half of the Tian-jing of the second section, and the rest of the courtyard had opened up to the sky. (Figure 4.10) The empty lots opened up pockets of exterior spaces within the lateral village. Residents took advantage of the space to set up a small vegetable farm in the grounds that once held the last section of the courtyards, and some taken the open space to dry laundry and vegetables. The buildings on the southern side of the branch had been reconstructed, and signage had been put up as private inns. The lack of buildings on the northern side of the branch revealed a sectional opening of the transverse corridor parallel to the branch house. (Figure 4.11) The open corridor was not modified throughout its open height space. The full height of the space relieved the claustrophobic tightness of a long narrow interstice. The original height also gave the traveler a sense of security in the space in comparison to the dark low corridors that were modified.

I had taken a turn at the first exit along the corridor toward the north. I entered into the middle section of the northern most west branch house. The first section adjacent to the main house, along with the last section of the main house had become open voids in the dense village. Efforts were made to the preserve the damaged portion of the compound. Large cornerstones from downed buildings were scavenged from buildings and laid around the surviving Tian-jing sinks. The disappearance of sections may arise from a myriad of reasons including natural weathering, improper maintenance, social conflicts, fires and etc. The fate of the courtyard was intrinsically tied to the health of the Tian-jing and the drainage sink. Failed sinks caused the unhealthiness of the surrounding buildings with the build up of moisture and hot air in the section. The continuous exposure high humidity caused mold growth, hastened the deterioration of the architecture, and negatively impacted the health of the habitants within.

Beyond the open thresholds of the sectional divisions, I could see there were more courtyards beyond. Those courtyards build in close adjacency of the compound extended upon the existing architecture modules and took advantage of the planned drainage system with pseudo sky-well courtyards. The proportion of the peripheral courtyards also varied depending on its proximity to the main house. Numerous rebuilt residential courtyards were recreated around existing function sky-well

Figure 4.11 *One of the transverse corridors between two branch houses, the southern sections opened up due to the deconstruction*



sinks. Although the later brick and concrete construction lacked the finesse and craft of the original brick and wood mixed-construction, the imitation courtyards continued to deliver a comfortable environment with well-lit and ventilated spaces for daily activities. The success of the typology was clearly demonstrated in the conscious decision to recreate and emulate the original spatial arrangements in the new social and material context.

I circled within the maze of connecting courtyards and found myself on the east side of the central house. The first eastern branch house had been largely rebuilt over the past century. Although building style and technique was lost in the renditions, remnants of the earlier courtyards remained in the reuse of scavenged building materials and the effort to emulate the older spatial proportion. Many of the older rebuilt structure from mis-20th century became more compact as the interior spaces expanded further into the public courtyard spaces. The increase in life expectancy and high fertility rate since the 19th century and baby boom after the Sino Japanese war have contributed to the greater need in housing[3]. The shrunken courtyard spaces became less comfortable to host common activities such as dining or daytime reposure activities. In some instances the sky-well sinks became the only open area of the public space.

In spite of the reconstruction, empty lot or new constructions, pedestrian passage continued to run uninterrupted like blood running unhindered in the veins. There was a longitudinal corridor parallel to the central house on the east similar to the one on the west side. Although the alleyway was similarly infilled beneath the ceiling space, the overall length of the passage was infilled evenly with a more consistent construction in comparison to the broken infills of odd heights on the west side. Most of the courtyards adjacent to the transverse alleyways retained its original material construction and architectural style.

In the second eastern branch house, the northern side wing of the central courtyard had collapsed and brought in copious daylight for the two adjacent courtyards. (Figure 4.12) However, the direct exposure to the elements was an undesirable condition of the Chinese day to day living activities. The vacancy not only left a void in the physical space but also a large absence in the social functions of the courtyard. The doors and windows of the incomplete courtyards tend to be shut in

Figure 4.12 *Void left between two sections of the second east branch house. The courtyards with functioning Tian-jings continue to be occupied.*

3 Lloyd E. Eastman, *Family, Fields, and Ancestors : Constancy and Change in China's Social and Economic History, 1550-1949* (New York: Oxford University Press, 1988).

comparison to the other full courtyards. Those had more human traffic and people reposing inside and out around the modest space around the Tian-jing. Those courtyards that deviated from the original modular design lacked the spatial proportions that gave the spaces comfortable size and environmental condition. The two outer courtyards of the second branch house were full occupied on the ground level. The outdoor space contained a myriad of household furnishing that showed clear evidence of high functionality of the space. The fact that residence was confident to leave private articles and open doors to the public also showed the trust in the security in this neighborhood.

I entered an empty room on the second floor in the last courtyard. (Figure 4.13) The wooden stairs in the courtyard were a later addition in the space. It blocked the access to one of the rooms on the ground level. The change likely happened after the division of households within the courtyard in the past century. The second level rooms were all inter-connected on the same level. The chambers along the north side were joined laterally with connecting doors and originally joined vertically to lower floors through steep wooden staircases in each room. The wooden division between sections also acted as the lateral connection corridor for upper level chambers on the two sides of the courtyards.

The upstairs chambers received filtered light from the sky-well

Figure 4.13 *Sectional division removed on the ground level. Residents used the left-over space for storage and added stairs to connect to the upper level. The upper sectional division remain as corridor connection for the upper level.*

through wooden windows orientated toward the courtyards. The interior finish was bare, the structural brick wall may have been plastered at one point. Shingles were laid directly to the joists without additional support. There were four to six sky-well light tiles in each chamber to invite additional daylight into the space. The frame and structure of the spaces stands strong, the habitability of upper levels could reach modern residential standards if some reconstruction could be done to ensure weathering seal to the loose connections and rain protection to the exterior.

The main entry of the second branch house on the east was used as minor threshold for the local residents. The façade of the entrance way was narrowly hidden behind a row of red brick modern two story houses. The modern construction formed a row of barricade around the periphery of the vernacular village comparable to the protective gates of a medieval city. The periphery building did not directly attach to the older buildings and did not repeat the courtyard typology in planning. However, all the new construction continues to respect the drainage channel around the village. The modern buildings were built behind the channel. Since the entrances open directly adjacent the watercourse, many houses build reinforced concrete slabs to level the entrances with leveled ground without disturbing the water flow below.

I receded from the last section of the second east branch and entered the first second house through a connection corridor near the center courtyard. It was mid afternoon; a number of workers were cleaning dishes after the lunch service rush around a Tian-jing. The workers were residents who lived in the surrounding houses. They politely inquired whether we had eaten, a customary Chinese greeting equivalent of “How are you.” The people who were operating the diners were largely local residents who ran the business on weekends and holidays. The kitchens were built in the chambers immediately adjacent to the central halls on the first sections of both east and west first branch houses. (Figure 4.14) In historic large compounds, there was often central kitchen that operated near the threshold that cooked large meals for grand gatherings or day to day meals. Although the current meta of large kitchens was geared towards guests, the return of function became an unintentional renewal of traditional design of the typology.

Figure 4.14 *Kitchen set up next to the west transverse corridor for convenience of dining service along the main house.*

I intended to return to the compound before my departure to solidify my memory of the place. As I continued down the path north, there were more open thresholds than close. Although the alley had a lowered ceiling and did not receive direct light throughout the majority of its length, the open doorways and connecting passages alleviated the oppressiveness of a long narrow space.

At the north-west most courtyard, vendors set up a stall to sell local dried goods to passing visitors. Despite the ongoing traffic of guests, local residents appeared to be not greatly perturbed to alter their own activities. People took afternoon naps in the ground floor chambers with their doors open to the courtyard whiles the television was playing news program in the background. Elderly people reposed casually in the courtyards sometimes conversing with the passgeners or simply observed the activities with amused eyes.

The courtyard behind the wall appeared spatially intact, but in the process of renewal, piles of building scrapes and broken furnishing filled the space. The abandoned chamber seemed to be the last courtyard in the north-west corner of the compound. An instinctual burst of curiosity induced me to walk through the small back door next to the pile of rubble to investigate the spaces beyond. I saw a narrow water channel running parallel to the small path leading away from the back door. The roof

eaves of the adjacent house hung over the exterior passage, extending the continuity of the village beyond the bounds of the private compounds. The adjacent house was a four *jin* compound with four Tian-jing courtyards. The formation of the central compound spatially resembled the central Dang Da Men house. However, the newer house only had connecting branches houses to the west side as the east façade neighbors the Dang Da Men house. I passed by the entrance of the second compound, and proceeded to follow the roofed pathway led to the west side of the house. As the passage turned to follow the long side of compound, the transverse passage was cut short by a closed doorway, but the way opened to the perpendicular branch house. The logic of the passage followed that of the previous compound[4]. The path that I took should theoretically continue northward, since the different branches had separated in individual households, property owners had added operable division doors between sections.

Light splashed into the passage from the west, the afternoon sun shone through the Tian-jing of one of the branch houses. Unlike the main house, the branch house tended to only use the side doors at sectional divisions. The courtyards continued on and on beyond the sectional divisions. The side doors aligned perfectly from one end to another for the entire length of the branch house. Many households chose to use the center door space to store large graining instruments or wooden storage cabinets. All these sections of the house were well-preserved and maintained the original Qing dynasty fashion. Each courtyard varied slightly in the craving styles in the geometry of the window lattices. (Figure 4.15) The Tian-jing and public spaces shared a more consistent proportion in comparison to the previous houses. Along the open space on the walls, a collection of photographs on the local puppet show was displayed.[ii] I walked from courtyard to courtyard in that branch house. All four of which appeared similar on my first walk. However, I noticed the differences in the details and proportions on my second walk-through. Overall, the branch house had a high quality of construction from the ground stone paving, to functional stone platform within the Tian-jing drainage, to the rigidity of the roof structure and neat roof tiling. The hall likely operated independently as a smaller organization within the larger village during the difficult periods of history in the past century.

4 The alley system in Zhang'guying resembled street planning of blocks and boulevards in cities, but the pathways function at the scale of courtyards and the human level. The entire village contained 64 transverse passages within several compounds. The longest path measures at 74m, and the length of all the paths total at 1479m. The corridors run perpendicular between main house and branch house, or parallel between branch houses. The paths acted as both fire divisions and interior transportation routes within the village. The path system strings the individual courtyards into a fully integrated mini-city

Figure 4.15 *Tian-jing courtyard in one of the branch houses. Photographs of puppet show on the walls.*

Figure 4.16 *Tofu making in Tian-jing courtyard*

The last courtyard house of the branch bordered the stream that wrapped around the entire village. I followed the roofed arcade parallel to the side of the stream, and walked along the façade of neighboring houses. Most of the door of the houses stood wide-open, some of them hosted inns or small businesses, but most of them remain to be neighborhood entrances for the series of courtyard houses within. I poked my head into some of them. Some of the houses contained only one or two *jins*, but some appeared to be much deeper. I crossed a relatively short house and reached the foot of the mountain to the rear of the village. A man stood under the sun, and spread pieces of tofu on large sheets of bamboo to dry. I struck up a conversation with the man, inquiring on his business of tofu making. He invited my party to his house next door to look at his tofu making studio in a Tian-jing courtyard. The tofu maker demonstrated his trade by making tofu in the traditional wooden press. He set up his tools next to the drainage sink, letting heavy rocks to press on the tofu molds, and allowing the water to flow through the weep holes on the bottom and fall into the drainage sink of the Tian-jing. (Figure 4.16) It was about two o'clock in the afternoon, the western light shone through the Tian-jing and casted onto the tofu table. The process showed how time and nature soaked through the soy beans, and transformed into delicious tofu.

I found my way back to the water stream, and walked south towards

Figure 4.17 *Photograph of puppet show in a Tian-jing courtyard in Zhang Guying village*

the Dang Damen piazza. Rubber tubes ran parallel to the side of the stream and spidered off to various houses. Most of the tubes consolidated at one of the stone wells near the entrance of the village, the others came from the well on the other end of the village. Every functional Tian-jing sink has one of such plastic tube installed on the side, with a small water tap on the top. People in the past used to manually carry water from the sinks on a daily basis. This simple modern installation has improved the lives of many residents.

Through my walk, I became more and more amazed by the unique character of the different series of courtyards in each branch and main house. Each series of courtyards appeared to have been constructed during the similar time frame, and most stood in similar levels of preservation or decay. I suspected each branch or house had been organized by one production cadre or family during the last hundred years, and the prosperity of their house depended on the effectiveness of organization. Despite the separated management, almost all the houses within the confines of the village remained interconnected by criss-crossing passages. The seemly dark pathways that connect the vast majority of the village may not be anyway glamorous in modern day standard, but it operated at the human scale that catered the needs of a pedestrian society. The multiplicity of the pathways created a fully integrated town and mega architecture; the courtyards and buildings in the village spread out like a tapestry weaving with knits and hole.

(Endnotes)

i The original settlement began construction during the reign of the first Ming emperor (1368-1398). Local folklore suggested that the ancestor of Zhang Guying was the warlord Zhang Shicheng, who had been one of Zhu Yuanzhang (The first Ming Emperor) revolutionary rivals during the rebellions against the Mongolian rule. After Zhang's defeat with Zhu in 1367, his descendants and advisors escaped prosecution and hid away. Unofficial history recorded that the Zhang's descendants traveled west along the Yangtze River from the present-day Zhejiang provinces and settled somewhere near the inner regions in China. The disproportional amount of wealth and immense knowledge in geomancy and urban planning displayed in Zhang Guying was far beyond the skills of a remote rural peasant in the 14th century. Moreover, the entire family did not construct any family lineage scroll for the entirety of the Ming Dynasty since its creation to avoid "stem prosecution", which strengthened the theory of Zhang being the unofficial ancestor of the village.

ii The shadow puppet show had been a popular source of entertainment throughout the ages. Travelling puppet caravans went from village to village to attend festivals, birthdays, weddings, funerals and other special occasions. The show required a relatively simple set-up, a fabric-stretched screen with light casted from the back, and hand crafted 2 dimensional puppets as the actors. Traditional puppets were made from donkey leather, and less expensive version were made in colored paper substitutes. The puppet master and musician played behind the screens, and discreetly reenacted famous tales of romance and heroism. In the modern settings, performers set up make-shift stands with wooden posts to divide a stage from a larger space. In the traditional Tian-jing courtyards, the performers could utilize the division between sections to host the spectacle. The audience circle around the Tian-jing while the performers play the story behind the sections. The traditional setting of the Tian-jing allows natural light to cast in the space of the audience and keep the players in the shadows. The differences in the space between the audience and the performers enhance the vile of mystery and complete the sense of theatre. (Figure 4.17)

May 4, 2019

Yinjiatang

Yangqiao neighbourhood, Qingshui village, Shaodong County, Hunan

The site hid from direct sight of the new 315 provincial road that connected Shaodong and Yueyang. We turned from the provincial road and drove down onto a sandy path that appeared to serve the local houses around a large patch of rice paddy fields. The narrow path was just wide enough for a single vehicle, and we encountered a few tight spots between neighbouring buildings. After passing a few brick and concrete country houses along the edge of the pasture, we eventually encountered the bend of a narrow river, and we made a sharp turn around the edge of a house built against the side of an old stone quarry hill. The new path deviated slightly from the river and continued east-ward orthogonally. More two storey houses stood on the southern side before the road opened toward an expansive façade of traditional grey-tiles.

The façade of the architecture appeared symmetrical from the center: three parallel bays plus two longer bays on each side of the central entrance. We arrived on a misty afternoon, the sky was grey from the morning precipitation, and the grey façade of the architecture almost appeared to have blended into the background of the muddy paths and turbid rice fields. (Figure 5.3)

Yinjiatang or Yin Family Hall sits against a rocky hill that lost a great section of its trees as fuel for the backyard furnaces[1] during the Great Leap Forward period. The original landscaper dug an irregular pond in front of the compound to complete the fengshui of the site that deviated river course 200 metres away. (Figure 5.1) Unlike the compounds that developed over time, the overall construction of Yinjiatang appeared to have been completed within a short period of time. The entire compound orients orthogonally with respect to the Zhengshui River to the south-west.

Figure 5.1 *Plan of Yinjiatang, from Hunan Historical Architecture, 2015*

Due to late arrival and the poor weather, the site stood empty of visitors when I arrived. A number of local vendors lingered about the front entrance hall in conversation. Three elderly ladies sat by their stalls in the entrance hall and welcomed us into the compound. Although the compound was under restoration, the construction veils had already been

1 "Yinjiatang Heritage Architecture," , http://www.chinashaodong.com/Info.

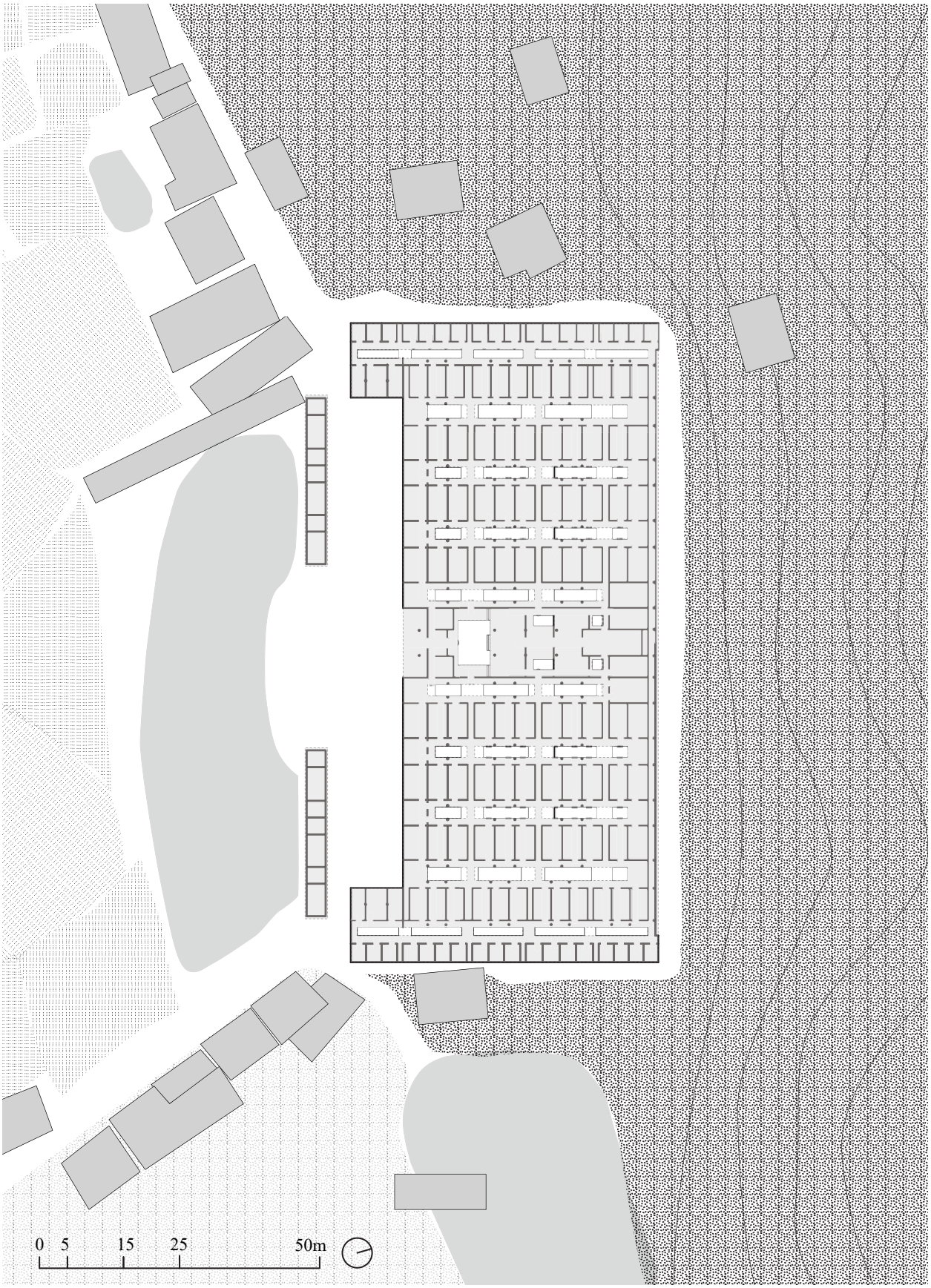

0 5 15 25 50m

Figure 5.2 *Yinjiatang facade panorama*

removed. The site had not officially open for public visit, but the locals had already taken upon themselves to occupy the public areas to engage in small commercial activities. I was not asked for a fee to enter, but was enthusiastically offered some sweets for a trifling price.

I inquired to the ladies whether the original family was named Yin (阴)[2] or had other families moved in to the compound since the founding of new China after 1949. The vendors quickly corrected me that the name of the place is Yinjiatang (荫[3]家堂), and the family name is Shen (申). I asked how many households lived here and whether families of foreign surnames had lived here. One lady replied that during the collective period, the compound was divided into 4 production cadres, and the architecture hosted over 300 people, from 74 households with 2 Wang surname families. According to the stone tablet outside the compound, two merchant brothers Shen commissioned the compound, and the architecture completed construction in the third year of Emperor Daoguang's reign (1823). The original building was arranged in 4 *jin*[4] and 6 bays in mixed brick and lumber construction. The two Shen brother left the text "for the prosperity of generations to come"[5] in stone by the

2 Yín(阴), in the shadow

3 Yìn(荫), in the shadow of a tree

4 *Jin*, steps or number of courtyards longitudinally along an axis

5 The etymology of the character 荫, yìn, contains the root (艹) flora and (阴) yín or shade, the character was commonly used in words to describe rights, titles or benefits of a hereditary nature.

entrance for their family and descendants.

According to the Qinghua Heritage Institute, the building area of the current compound totals 9191m^2, with 108 chambers, 40 storage rooms and 44 Tian-jings[6]. At the time of my visit, the façade showed that additional rows were constructed after the compeletion of the original architecture. The later constructions made separate thresholds to the outside, and the connections within the architecture were broken from the lateral access across the rows. It is likely that the additional rows were made during the last golden periods of the late Qing dynasty when the economy of the family and of the empire thrived before the foreign and civil disruptions. The family avoided status impeachment by disconnecting the visual connection and physical direction between the original architecture and the later constructions.

I thanked the ladies from the entrance hall and entered the first open courtyard in the compound. The interior finish appeared new and smelled fresh from the stone pavements, wall paint, wood lattice finish, the roof tiles and beyond. I was taken aback at the state of the restoration because I did not recognize the scene from the images that I had studied

6 luhe Li et al., *Historical Architectural Map of Hunan*, 1st ed. (Beijing: Qinghua University Press 清华大学出版社, 2016).

in my research prior to my field trip. In books published in 2015 and 2018, articles written on the site still contained picture of a site in a neglected state. Although no furniture or lighting equipment had yet to be installed in the newly restored ancestral hall, the Tian-jings allowed the architecture to be adequately illuminated during the grey weather. It was raining by the time we entered the architecture, and I used the small arcade around the entrance courtyard to move to the first *jin*.

The two Shen brothers commissioned two separate and equal households to be built on the two sides of the central hall. The use of two complete fire walls on each side of the ancestral hall heightens the social separation showed through building construction in addition to the spatial separation displayed through the plan. The Yinjiatang firewalls have additional pitched roofing at the Tian-jing openings for additional rain and snow protection for the exposed brick structure.

The next set of double Tian-jing stood on the two sides of the central passage. Each measured about 2mx2m. A renewed air tower spanned over the connection between the second and third *jin*. Since the second set of Tian-jings are not walled by dividers, thus the connection space between the two *jins* flowed seamlessly together and greatly increased the sense of area. (Figure 5.4) Every set of Tian-jings contains a matching set of thresholds on the firewall that joins the lateral connection across the compound. These passages allow all the residents of the compound a clear access to their public place of worship and public space of gathering.

The central hall led directly to the worship altar at the back of the architecture. Enclosing the last set of double Tian-jing behind an intricate set of wooden dividers set the worship space into visual focus. The ancestral altar in the back of the room has been traditionally illuminated by candle vigil lights in front of each memorial plaques. In large families, plaques of significant family members accumulated over hundreds of years, and the collection displayed the strength and prosperity of the lineage. The illuminated altar of family plaques was a wall of light that guided the descendants of the founders.

A suite of chambers adjoining each of the last two Tian-jing was reserved for the persons with the highest seniority in each family. The private Tian-jings measured 1.8m x 2m. The suite was spatially divided from the public behind wooden lattice on two sides, and the firewall on

Figure 5.3 *Interior view of double Tian-jing openings and connecting air tower in the second jin of the ancestral hall from the north*

the third. The small open air space not only functioned as air ventilation and light access for the public space but also a semi-private entrance courtyard for the private suite. The door of the suite is placed near the edge of the room façade and the threshold to the last row of lateral axis to the rest of the compound. The master room measured 3.75m wide and 7m deep. Large rectangular windows took up roughly ¼ of each end of the wall. The floor level of the second floor has been altered with the restoration, and beam marks on the walls show that the original floor was lower than the current floor beams. The shorter separating distance of the beams also suggested that the previous stairs had a higher slope than the current 60°. The floor to ceiling height of the first floor measured approx. 3m, the second floor to the mid-section of the pitched roof measured about 3.75m, and 3m at the lowest point, and approx. 4.25m to the highest point of the roof. Although the center of the room was not completely illuminated due to the length of the room, the overall space appeared were adequately illuminated in a rainy day for 2/3 of the room without any artificial lighting. The increased room height slightly decreased the amount of the light received within the space on the second floor, but increased the original room height in the ground floor. Modern application of electric lights would have easily improved the interior lighting in addition to natural lighting.

Figure 5.4 *Left: View of first linear Tian-jing courtyard to the east of ancestral hall*

I returned to the entrance hall to ask the elderly ladies whether the rest of the compound was closed for visit due to the restoration works. They waved their hands and silently gestured me towards an open door on the right of the hall. I followed their gaze and stepped into the long linear courtyard that contained three step Tian-jings. (Figure 5.5) The entire courtyard measured 40m x 5m, and the Tian-jing sinks measured between 9.5m to 14m long and 2m wide. Each Tian-jing spanned for 3 chambers and gapped for the lateral connection corridors between the rows of buildings. The rooms measured about 3.5m x 6m each. Every chamber contained its own vertical access to a matching upper level. All the rooms had windows and door access to the Tian-jing courtyards on both sides. However, none of the units had built-in water pipes or drainage system for bathrooms or kitchens.

Figure 5.5 *Bottome left: Clear cross connection through thresholds across multiple rows*

Figure 5.6 *Bottome right: Clear visual connection through public passages across multiple rows*

The overall compound followed an institutional design scheme such that the majority of chambers from the original and latter additions received relatively equal treatment in proportion and equal access to the Tian-jings courtyards on both ground and upper levels. The linear courtyards perform efficiently as access corridors and as multi-purpose public spaces. The modular interior and exterior spatial proportions

Figure 5.7 *View of standard linear Tian-jing courtyard, similar spatial porportion for eight centre rows.*

repeated over the original six rows and applied again in slight modification for the last two additions. The Tian-jing and the system of chambers became a flexible module that allowed further modifications in the size and number of the rooms or the number of Tian-jing within the overall framework. (Figure 5.8) Furthermore, the rooms could be modified to divide or connect with each other.

A long balcony ran along the entire length of the back façade and connected across the whole compound with no interruption. The balcony measured about 1.5m wide. The renewed wooden balcony positioned the floor beams higher than suitable height, for the floor-to beam height measured between 1.75 to 2m high, just enough clearing for an average Chinese man. The rear balcony is accessible from the northern-most chamber on the upper level at each of the linear courtyards. The research plans show a similar passage or balcony at the interior border along the southern façade. It appears that the southern passage had been removed by the restoration team in order to expose the original brick façade. The differences in floor and beam height, and odd disconnection between the main building and the passages suggested that either one or both of the passages could be later additions to the original compound.

The overall structural restoration of the compound had been completed. The original 300mm grey-brick from the Qing dynasty original

Figure 5.8 *View of western edge linear Tian-jing courtyard*

construction is no longer in production. The restoration team utilized scavenged whole bricks from the deconstruction of later additions, and mixed in imitation red bricks of similar dimension. The restoration also renewed the traditional slant stairs in every unit. The majority of upper level Tian-jing balconies had been rebuilt but had not been repainted. The new exterior balconies matched with each elevating Tian-jing steps on the ground level, but encountered height issues with roof beams at multiple locations where the floor-to-beam height was equal or less than 1.75m. The upper level balcony sometimes does not match the interior finished floor level due to the level synchronization.

The last row of either side contained chambers that differ greatly from the ones in the center. The chambers are smaller in plan, and the floor height did not match the restored floor height of the center rows. Although the side row does not have exterior balconies, the rooms are connected through axial thresholds hat allow a transverse visual axis across the entire row. Although the last row of storage chamber did not have exterior access, the rooms were connected through axial thresholds that allow a transverse visual axial threshold that allowed a transverse visual access across the entire row of chambers.

As I walked towards the western edge, an elderly resident was meticulously cleaning out the construction debris on the lower level. A

few units on the southern end of the western edge row showed signs of residence—the only occupied rooms within the compound. (Figure 5.9) I could not get down to use the exit from the back row as none of the chambers contained any vertical circulation in the entire row. I back tracked through the northern balcony to return towards the entrance hall. However, the vendors had vacated the space and locked the front gates; I found myself in the eerie situation of being locked within an enormous and empty compound. As I started to panic, I made my way through the side door back to the eastern side of the compound to find another exit. To my dismay, all the gates on the southern façade had been locked. After much back and forth through the multiple rows, I slid my hands through the crack of one of the doors along the southern façade. I tugged and shook the chains until it loosened a crack between the bi-fold doors, and I escaped through the enlarged opening.

As I stepped back into freedom, I discovered that the elderly residents had left to make dinner and forgotten that I lingered inside. Some of the residents currently reside in the row buildings constructed by the restoration team; another group remained in the extended portion

of the later addition of the compound. It appeared that the rebuild spaces do not supply enough housing for the residents. Some elderly residents live in the temporary construction shelters next to the site. The shelters comprised of modular metal board walls and corrugated metal roofing. The arrangement of the two rows of temporary shelters created a linear central space in the middle much like the Tian-jing courtyards within the compound. The living situation in these structures appeared less than ideal for residence. The interior spaces felt uncomfortable due to poor ventilation and humidity build up. The conditions forced residents to cook outside. Everyone, including residents and visitors use the built-in squat toilets and make-shift showers in one of the modular units. I walked to the end of the temporary shelter and looked out into the rice paddies and mountains to the south of the site. The remains of a blue construction shelter wall floated in the pond in front of Yinjiatang. (Figure 5.10) The gray sky connected seamlessly with the muddy earth and waters below. When I looked back through the artificial Tian-jing of the temporary shelters, chicken bobbed around the elders waiting outside in silence for the passing of the rain.

Figure 5.9 *Landscape panorama south of Yinjiatang*

Xiangxiang City, Xiangtan City, Hunan

When a prince of the Western Han dynasty was made the Marquis of Xiangxiang in 3rd BCE, he was granted the land around the central section of the Lian River, and the city of Xiangxiang first appeared in recorded text. In the late Qing dynasty, the county was the home and birthplace of various important political figures including the military General Zeng Guofan and the Chairman Mao Zedong of the Chinese Communist Party.

In 1890, Guangda Huang and partners founded the Dongshan Academy as a private institution serving the Confucian education model. Private institutions remained to be the most popular means of education in late Qing dynasty between the First Opium War of 1840 to the abrogation of the imperial examination in 1905. In Xiangxiang, to the success of their fellow countrymen Zeng Guofan especially popularized Confucian philosophy during this period. However, the defeat of the First-Sino Japanese War in 1895 reignited an eruption of public unrest against the Manchurian rule and mistrust in the traditional Confucian learning of loyalty and piety[1]. Furthermore, the defeat of the famous Xiang army by the hands of the foreigners had put the Hunanese people into despair over the future of the imperial empire and homeland. Many of the educated elites including Liang Qichao began to distribute revolutionary texts across the country in defiance of the humiliating treaty signed between the warring countries in the aftermath of the conflict. Academics and institutions became discouraged by the trend from teaching traditional Confucian text, and many institutions reformed to include modern subjects such as mathematics and modern sciences. The Dongshan Academy became one of the early institutes in Hunan to embrace the new education model in 1895 while maintaining the traditional architectural setting. During the years the academy was developing towards a modern institution, its most famous pupil, young Mao Zedong, was born in the village of Shaoshan in 1393. Mao became part of the early generation of students to receive revolutionary thinking in the wake of the new republic in 1910.

The original school eventually evolved into a comprehensive institution to include junior high school in 1940 and secondary high school in 1969. The student body increased with the advancement in

1 Joseph Esherick, *Reform and Revolution in China : The 1911 Revolution in Hunan and Hubei* (Berkeley; Berkeley : University of California Press, C1976: University of California Press, 1976).

industry and economy, and the school became exclusively a secondary institution by the end of the 20th century. After the economic reform in late 1980s, the academy built rows of shear wall constructions on the northern periphery of the original gates.

The original architecture received protection under the recognition for being the alma mater of the communist leader, and the government consistently maintained the original architecture. The old school proved to be function in the 21st century: when the new school buildings were updating in 2006, the academy re-opened the old lecture halls and classrooms for lessons during the reconstruction period.

After the visit of five different Tian-jing compounds of various architectural and urban scales and in varying state of decay or preservation, I began to question not only the past and present of Tian-jing architecture but also the future of the typology in the modern context. Throughout my travels, I saw a number of modern rural houses that included central light wells which imitated traditional Tian-jings, but the essence of the architectural device in spatial and urban organization had been lost in the imitated skylights. The imitation Tian-jing only provided the function of light access, the spaces were not open to the outside, nor did they span enough space to allow for small-scale social activities. The compound architecture that I had visited had either deteriorated over time or had become museumified for educational purposes; all but the Zhangguying village face obsolescence. However, even the vernacularism of Zhangguying is being challenged by the trends of tourism, commercialization, and gentrification. I decided to re-visit the Dongshan Academy after my initial visit in April 28th to re-evaluate the Tian-jing architecture in a non-private setting. On May 5th, my cousin chose to accompany me in my investigation. He had graduated from the Dongshan secondary high school many years prior. The following is a combined recollection of the two visits, the journey impression from Apr 28th, the measurement and spatial analysis from May 5th.

April 28, 2019 Observations / May 8, 2019 Measurements and Analysis

Dongshan Academy

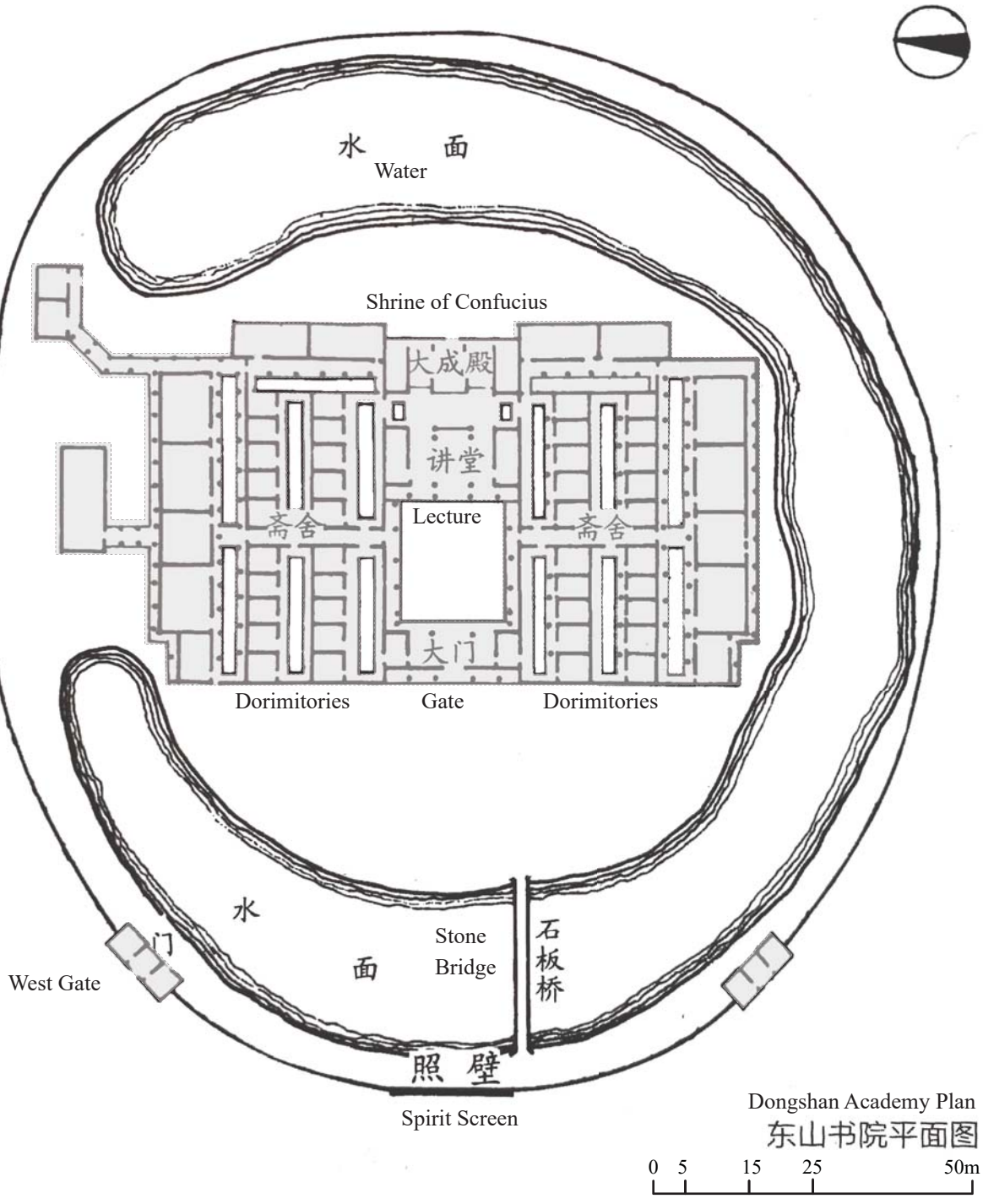
My cousin drove us through the new automatic metal gates built in 2016[2] as an extension of the school property from the original site of 1890. The new front gate aligned parallel to the original north-western masonry door gate. We parked his car at the landscaped parking space, which was built behind a small row of trees to the south of the entrance. The original academy gates stood as one of the best-preserved architectural relics in the province. Two stepping firewalls structurally supported the row shaped gate house, and sacred beasts adorned the edge of the wall, howling towards the heavens for divine protection and prosperity of the ages. A row of vertically placed ceramic tiles protected the spire of the roof. The row of tiles was broken at the center with a symbolic purity vase—an object of protection against evil and symbol for harmony and fortune. (Figure 6.1)

I entered the old school grounds through the north-west original academy gates. The entrance did not open toward into an axial connection with the architecture, but onto a garden trail around a crescent moat of the central academy compound. Swarms of colourful koi glided along the crescent moat around the little peninsula island. Purple water lilies blossomed in patches near the higher banks of the water, and the branches of the willow tree drooped over the aquatic foliage below. I walked along

2 When I wanted to visit the Academy in the summer of 2016, I was unable to enter the site due to the reconstruction on the road and plaza outside the new gates.

Figure 6.1 *Left: original west gate house of the academy*

Figure 6.2 *Right: plan of Dongshan Academy. From Historical Architectural Map of Hunan, 2016, p.103*



Dongshan Academy Plan
东山书院平面图

the gently curving outer walls, towards the stone bridge that connected the periphery path to the peninsula island. An exercise song began to play on my walk; the high school students at the new school were beginning their morning stretches. The mid-rises of the new school towered over the original gates and the trees of the old school site. A spirit screen wall stood along the southern wall by the southern end of the stone bridge, and in axial connection with the central lecture hall on the island. As I crossed the stone bridge, the swarm of koi followed me as I went from one end to the other. (Figure 6.3)

The architecture stood upon a pristine green lawn. The long masonry façade uncharacteristically oriented towards the west despite the name sake of the east mountain school[3]. Generally, the site should be on the north side of a river and the south of a hill, but the building situated against standard convention. Although the façade oriented towards the west, the orthogonal spatial organization and lateral use of linear courtyard rotated the inner classrooms and chambers onto the north-south axis. Prior to 1949, over 90% of the population lived in the country[4]. Some students may stay home to work on the farm in the morning and travel into Xiangxiang to attend lessons in the afternoon, when the central lecture hall receives the maximum amount of illumination.

A large rectangular courtyard sat beyond the open entrance hall.

3 东山学校

4 田雪原(Tian, Xueyuan) *China's Problems* (Beijing: 今日中国出版社 (Today China Publishing), 1997), 153.

Figure 6.3 *View of the academy facade from south of the stone bridge. The original academy fresh water well in the foreground.*

Figure 6.4 *Entrance courtyard with on-going photography exhibition around the arcade.*

(Figure 6.4) The courtyard measured 19.5m long and 19m wide, with a 2m wide arcade that ran around the periphery of the stone tiled courtyard floor. The museum put up a local photography exhibition around the arcade. It was one of the few instances of public multi-purpose use of a museumifed compound from my experiences of the Tian-jing compounds. The formal classical lecture hall took the place of the ancestral altar in the school setting. In the past, the teacher took the seat in a central chair in the back of the room while the students stood in assembly to listen to verbal lessons and critiques of the classical texts. Various wooden banners of calligraphy from various political leaders including Chairman Mao Zedong and Hua Guofeng hung below the ceiling of the old lecture space.

Two corridors led north and south from the entrance courtyard towards the dormitories and secondary classrooms. The other rooms were fire-separated from the official lecture hall and courtyard behind a double set of masonry fire-walls. Each side contained three tows of linear Tian-jing courtyards, and the chambers mirrored along each direction of the corridors. The first two rows closest to the central courtyard were two-story dormitories and study rooms for the students. Each dormitory Tian-jing courtyard measured 17.5m deep and 5.25m wide, the Tian-jing sinks were 2.3m wide. (Figure 6.5) A wooden stair rested against the outer

wall at the end of each Tian-jing courtyards to allow access to the upper level rooms. Students could access the second level chambers through a set of wood balcony parallel to the Tian-jing. All the dormitories and study rooms shared a similar dimension of approx. 4.25m x 3.35m. The rooms were either furnished with classical style wooden framed beds that measured 2.1 long and 2.15m tall or a number of study desks. A sign at the exhibition indicated that the rooms were furnished to the style when Mao attended school in the building in 1910-1911. The dormitory and study chambers had light and ventilation access through windows towards Tian-jing on both sides of the room, but one door facing the central academy corridor.

Two small Tian-jing courtyards—each measuring 4.7m and 3.5m sat on one of each side of the central lecture hall. (Figure 6.6) Wooden screen thresholds separated the two rectangular courtyards from the old lecture hall and the first row of dormitories Tian-jing courtyard. These smaller Tian-jings created a semi-private light opening between the teacher's residence near the central and the spaces of the students.

A perpendicular linear Tian-jing courtyard connected of the central lecture hall to two additional small halls on each side of the central axis.

Figure 6.5 *Right: standard student dormitory Tian-jing courtyard*

Figure 6.6 *Bottom left: small Tian-jing opening between the lecture hall and the student dormitories Tian-jing courtyards*

Figure 6.7 *Bottom right: northern linear Tian-jing courtyard perpendicular to the main axis of the academy.*

(Figure 6.7) The Tian-jing courtyards on the eastern side of the central corridors had a discreet access to eight additional classrooms: four rooms along each end façade parallel to the central. A pseudo western lecture room stood on the mainland from the peninsula island; the academy built the external lecture hall in the early days of intellectual reform to embrace the western style modern education. The hall measured 13.5m by 6m and appeared to be about 5m in height. The elongated interior resembled a simple western church with its central stage and blackboard for the teacher. (Figure 6.8) The six high windows along the two long sides of the wall visually stretched the vertical space further enhances the reading as a chapel.

The overall structure of the original academy was made up of grey-brick masonry construction. The columns on the exterior and central courtyard consisted of large pieces of limestone and were formed from two stacked pieces. The overall structure of the Tian-jing architecture used lumber sparsely in comparison to earlier Tian-jing compounds due to the expense and scarcity of the material in late Qing[5]. Only the roof structure and lateral floor and balcony structure contained structural lumber, and all load carrying walls used brick and masonry construction. Moreover, the wooden columns that supported the upper level balconies sat on limestone column bases above the Tian-jing drainage sinks.

I walked towards the edge of the north-western courtyard and

5 Francis D. K. Ching 1943-, *A Global History of Architecture*, eds. Mark Jarzombek and Vikramaditya Prakash, 2nd ed. ed. (Hoboken, N.J.: Wiley, 2011).

Figure 6.8 *The western style classroom*

found a side door that exited into the back lawn. A narrow water channel followed around the periphery of the architecture, physically separating the building from the exterior lawn. As I was strolling around the exterior façade, I noticed that only the western façade and central hall received firewall treatment, and the rest of the architecture was finished in plastered stucco wall. (Figure 6.9)

The Tian-jing feature in Dongshan Academy functioned more so as solitary architectural devices within each individual courtyard, rather than connecting spatial devices that joined multiple pieces of sub-buildings within the larger compound. Despite its singular spatial function, the Tian-jing allowed adequate light and air flow into the interior spaces, and created a private hub for the chambers within that courtyard. Moreover, the geometry of the linear courtyards allowed the chambers of east-west architecture to rotate its inner orientation within the compound walls and maintain the ideal orientation to achieve a climate responsive architecture.

As I exited through the new exterior gates, a bevy of students rushed out toward the metal gates house to check on their mail and deliveries from the security during their lunch break. Since the school had become a top graduating high school in Hunan since the Mao era, bright students will continue to populate the academy for generations to come.

Figure 6.9 *Western facade of academy*

May 8, 2019 Travel Observations

Mao Zedong Former Residence

Shaoshan Village, Shaoshan, Xiangxiang, Xiangtan City, Hunan

I waited by golden arch that connected the local neighbourhood association to the county road joining Xiangxiang to Shaoshan for a rural private bus. The local butcher store opened its door at 6:00AM to the passing villagers. Fresh cuts of pork were laid out on directly on a large wooden board in the early morning air; Grandmamma went up to the vendor for morning greetings, and the friendly vendors pulled out two plastic stools, one near the shop and the other near the side of road for me to wait on. A round mini-van came soaring through town towards Shaoshan. I waved at the driver, and the van made an abrupt stop in front of my red plastic stool.

I said goodbye to grandmamma and hopped into the rickety van. The driver asked for 5¥ for the fare, and I dug through my change wallet to hand him the bill before I scrabbled to sit down. The passengers paused their conversations and took notice of me. A rough looking middle aged man asked me how I knew the lady I said goodbye to. I was first startled at the question, but he reassured me that he was from the village and he knew my grandmamma. After some light conversation, I was surprised to find out that almost everyone on the bus was somewhat familiar with each other as they all often took the morning bus to contact business in town. The passengers inquired on what such a young lady from the city was going so early to Shaoshan, and I told them that I was going to visit the Museum of Mao in the Shaoshan village. A lady who had been silent suddenly turned to look at me, and she pointed at the badge pined upon her chest; she worked at the museum. She told me that I could follow her off the bus at the Shaoshan interchange to go into the mountain

When we arrived by the main road in Shaoshan, the lady yelled at the driver to drop us off at the central intersection. The road had been newly paved, and the traffic lights had been installed but were not yet operational. A small car honked at us as we crossed the intersection, the lady turned to look, and waved her arm excitedly at the driver. A mini-size electric vehicle stopped on the side of the road. She explained to me that we could get a lift in her colleague's car into the village. I took a leap

of faith and squeezed into the narrow back seat of the vehicle. The car sped up the fresh asphalt road into the Shao Mountain (Shaoshan). As the driver drove past the electronic ticket gates without interruption with an employee pass, I finally let my heart rest at the reassurance of entering the site.

The mini-car flew past rice paddy fields in the Shaoshan valley. Even though the tourism had helped the locals to develop additional income sources such as private inns and family restaurants to serve the visitors, the surrounding landscape remained largely agricultural. Plots of regrown foliage covered the area near the museum site, and the valley folded inwards as well-groomed landscaping trees began to flourish outside the exhibition hall. The driver let us off at a tri-intersection, and continued beyond a small stone bridge. The lady pointed towards the pedestrian path lined with ancient trees and gestured that it was the way to the former residence. She proceeded to inform me that there should be local buses near our location that pass by to collect locals to enter the town throughout the day, and waved goodbye to report in for work.

I followed behind two large groups of tourists towards the former residence under the shades of trees, and more tourist groups followed behind. All the groups spoke in different dialects, and it appeared that some travelled from distant provinces to Hunan in group tours. We treaded along the trail following along the natural topography at the base of the hill. Foliage covered over the path, and one path sloped into the valley while the other open into fields and houses in the open plains.

Figure 7.1 *Water pond to the north of the vistor path and the Southern Bank Academy*

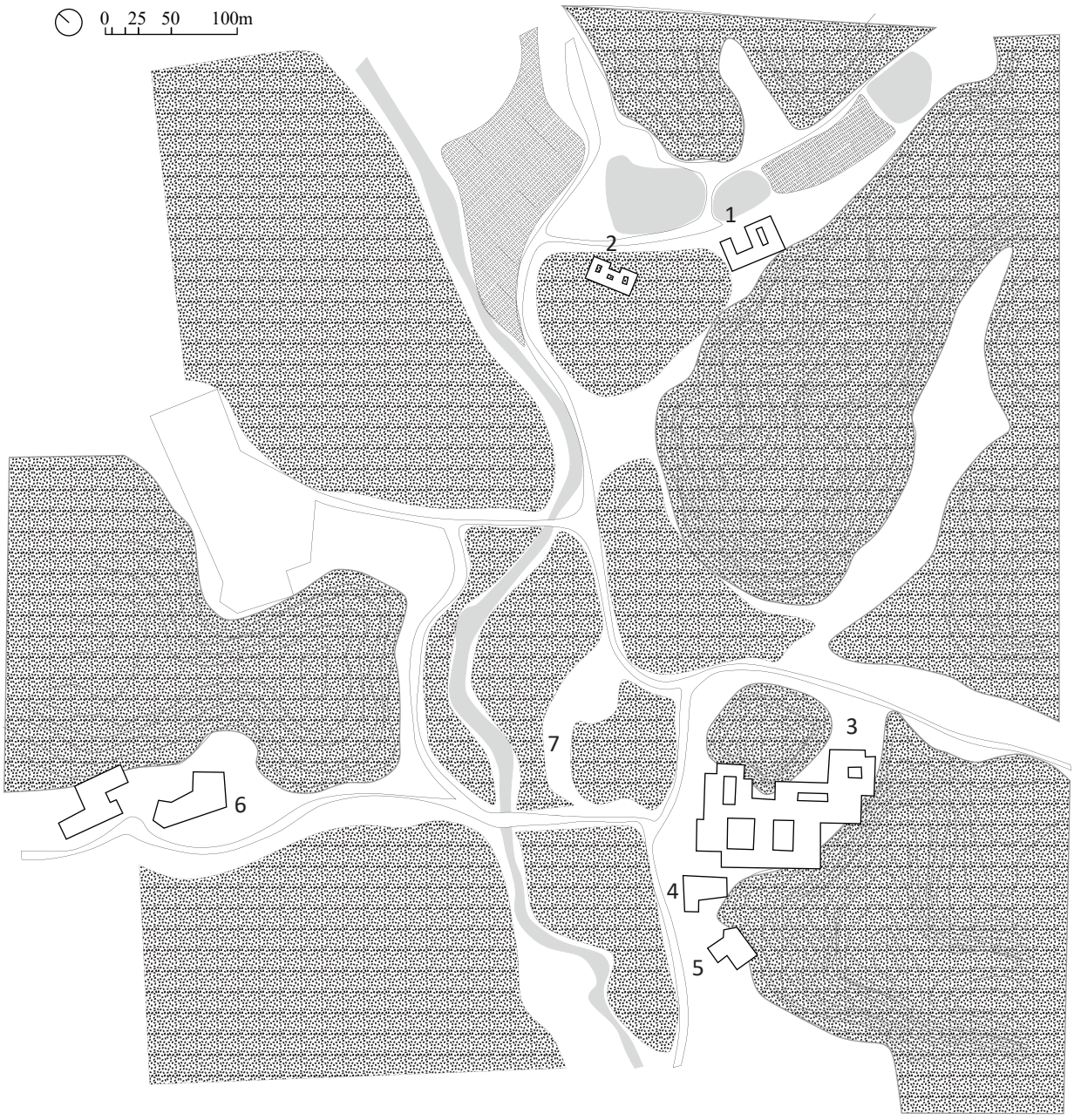


Figure 7.2 *Map of the Mao Memorial Museum area. 1)Mao former residence 2)Southern bank academy 3)Mao memorial hall 4)Mao clan ancestral hall 5)Mao family ancestral hall 6)Shaoshan inn 7) Mao statue and great avenue. I entered the Shao mountain valley from the south-east passage.*

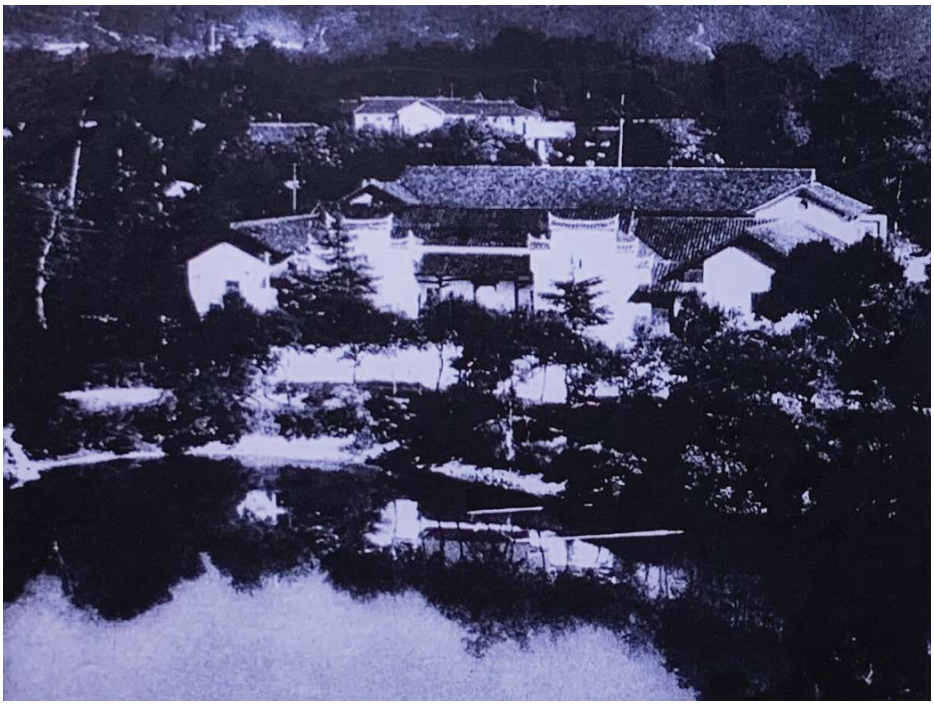


Figure 7.3 *Southern Bank Academy. Historic photograph from the exhibition*

Southbank private school (南岸私塾)

The visitor path passed by the Southbank private school (南岸私塾) before the Mao residence. (Figure 7.2) Mao received his early education in classical Confucian studies such as the three word poems and the Analects of Confucius in this private institution in 1903-1904 before the eradication of the imperial examinations in 1905.

A statue of a young Mao stood in the front entrance. A bamboo screen unrolled from the ceiling behind the statue to divide the entrance space from the adjacent Tian-jing to prevent rain from damaging the sculpture. The rectangular Tian-jing, with the long side perpendicular to the central axis, measured 3.5x1.5m. The central back hall beyond the Tian-jing previously served as the teacher's seats and prayer altar.

The plan branched out equally from the center. To the west, two rooms opened on to the south side of the corridor. The first was a bedroom, and the second a sitting antechamber with a back door to another chamber behind. A narrow stair connected towards the second level chambers from the corridor. A second small Tian-jing sat at the turn of the corridor, and the Tian-jing sink measured 1.1 x 3.1m. The long side of the Tian-jing paralleled to the central axis of the school. The secondary hall rotated with the orientation of the Tian-jing, perpendicular to the axis of the main hall. The positioning of the half Tian-jing against the wall

to the east allowed maximum amount of eastern daylight to enter the secondary hall in the morning. Moreover, the Tian-jing opening adjacent an interior wall allowed for the western sunlight to heat up the rammed earth structure and provided thermal heating in the evenings.

The eastern branch corridor followed a similar spatial organization to the west. The west Tian-jing measured 7.8m x 3.8m, and the drainage sink measured 5.4m x 1.9m. The larger size of the eastern Tian-jing displayed the classic Hunan preference for eastern illumination in comparison to the half size western Tian-jing to avoid the evening blast of the sun. Three chambers surrounded the periphery of the east Tian-jing. Axial doors close to the Tian-jing connected the periphery chambers internally, performing as an interior corridor without walls.

I exited the Southern Bank Academy through the main entrance, and crossed the narrow land bridge between the irrigation pond (Figure 7.1) and the drainage pond between the Mao house and the school. Rice paddy fields elevated in terraces towards the east. Water channels ran along the periphery of each step, overflow rain water in the channels first flow into the irrigation pond, and then into the larger drainage pond to the west. For millenniums, peasants across Hunan and southern China raised fishes in the rice terraces to clear the water parasites, and farmed lotus roots in the ponds. Today, many rural families continue to use ancient wisdom to maximize the ecological health and production of every inch of land and water in the resource scarce periods.

Figure 7.4 *Mao former residence from across the lily pond*

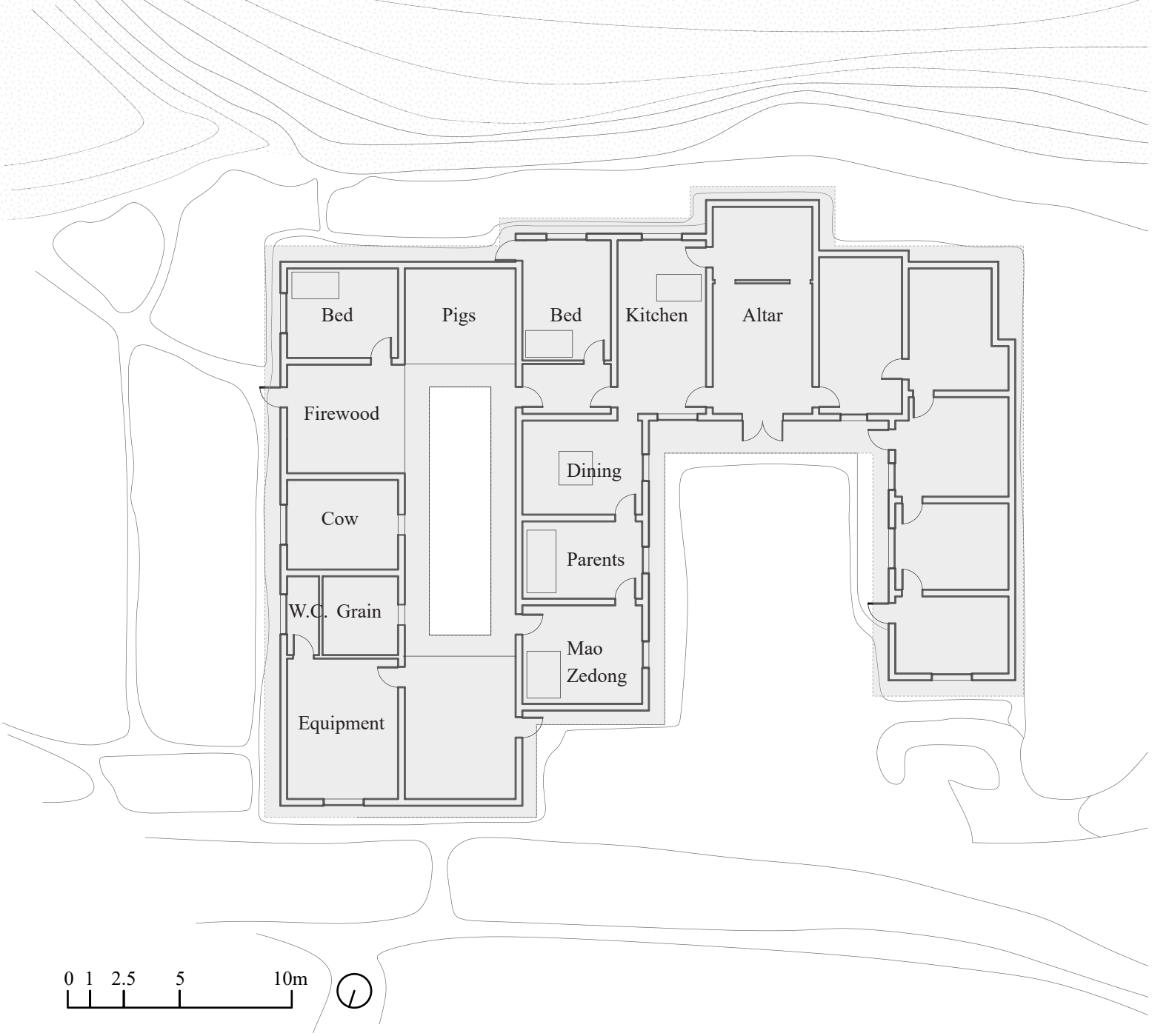


Figure 7.5 *Mao former residence ground plan*

Mao former residence

Lotus lily pads sprouted on the surface of the pond to the north of the Mao house, and I observed the modest façade of the House from across the water. Buildings formed two arms embracing a recessed entrance courtyard that oriented towards the north. To the east, a modest yellow brick and dark shingle building extended of the exterior courtyard. The section on the west side appeared significantly smaller in comparison, and the top had been capped with straw instead of shingles. The Mao family lived on the eastern house, and a neighbor shared the other under the same roof. (Figure 7.4)

A long queue of guests lined up for the small entrance at the courtyard. The line wrapped beyond the neighbor's house and all the way around the side garden and onto the back hill above the South Bank Academy. I backtracked to follow the queue and found myself at the ticket box and resting area. Each visitor could receive a free entry ticket with a proof of identification like the Dongshan Academy. From the ticket box, a landscaped pedestrian lane led the visitor around a landscaping route from the back hill in order to rejoin the queue at the front courtyard.

Back in the entry courtyard, the roof structure of the Mao house extended beyond the façade of the building. Wooden beams sat under the weight of the structural brick wall, and supported the overhanging eaves to form a small arcade around the exterior courtyard. The entrance threshold for the Mao former residence contained a matching set of brick stone drums at the base of the opening, and a pair of longitudinal door lintels with a unique fortune symbol at the end of each lintel. Both the set of brick drums and the pair of lintels displayed the peasant status of the family within the feudal social hierarchy[1].

The entrance opened to a ceremonial living room that contained a set of wooden square table, benches, and wooden worship altar on the unfinished back wall. The room had no windows, two narrow pieces of glass tiles on the south fold of the roof allowed additional daylight into the room with no windows. Two doors aligned each corner of the back wall and a connecting door on each side wall near the northern façade. The two families shared the entrance courtyard and the public living room. Although the nature of relationship between the two families is unclear, the semi-public entrance and ceremonial worship space suggests a common lineage for the residences beneath the shared roof.

An internal corridor ran adjacent the exterior courtyard façade, and stringed together all of the living chambers of the Mao former residence. The semi-public corridor does not wall off the rooms into disconnected spaces, but maintain continuity between the separate chambers. The family kitchen situated right next to the public living room. A large concrete and brick structured stove contained three pits, one large pit with a large cast iron pot for general stir-fry, a medium pit for general cooking , and a small pit for the rice steamer. (Figure 7.6)

The corridor proceeded onwards on the latitudinal axis towards

1 In the past, the architecture of the threshold must clearly display the status of the family within the abode. The size of the opening and number of longitudinal lintels spoke of the social rank of the residences.

Figure 7.6 *Kitchen typical of rural houses in Hunan.*

the family Tian-jing, and rotated with the corner of the exterior courtyard and connected the chambers between the exterior courtyard and the interior Tian-jing: The dining chamber, the Mao master chamber and the reading room aligned in sequence. The unwalled corridor acted as a spatial filter to set the interior chambers away from the western exposure to the afternoon sun.

From the dining room, I saw a wax figure of a people's liberation army officer standing at the end of the corridor in the reading room. He silently watched the progression of visitors shifting down the hall towards the family Tian-jing. Many visitors awed at the likeness of the figure and went up to take a better look at the life–size model. Upon close inspections, I discovered, much to my amazement that the wax figure was an officer who held the posture so still that resembled an object more than a human.The man stood firm to serve as a watchman for the former bedroom of the great Communist leader comrade Mao Zedong. A classic wooden bedroom sat at the north-east corner of the room, a small desk with a skinny bench stool stood in the centre of the room. A picture of the Mao's first wife and children and Mao with family hung upon the mud plastered wall. The room represented the modest up-bringing and peasant background of the party leader that also mirror the lives of millions of supporters that followed and executed his revolutions. The decision for

Figure 7.7 *Mao family Tian-jing, looking north. Cow shetler first right, grain storage second right, and Mao Zedong bedroom to the left.*

the museum to maintain the room in this manner is a carefully curated image that the authorities had approved for the masses to relate to and empathize with.

A door on the eastern wall of the chamber joined Mao Zedong's room to the family Tian-jing. (Figure 7.7) The internal Tian-jing connected the main family building to the secondary building to the east; the additional building provided space for the cattle, grain and firewood storage and secondary bedrooms for the younger children. The Tian-jing courtyard spanned across about 5m across and 12-15m along the north-south axis, or about 3 interior rooms from the dining room to Mao Zedong's room. A narrow-roofed arcade wrapped around the knee deep central drainage sink. The northern most chamber along the façade contained a number of farming equipment, and served as a general storage facility for the family. The room also contained a discreet door to the only privy in the household. The granary, the bull pen and the fire-wood storage room aligned in sequence along the eastern side of the family Tian-jing. The granary door sat a few feet above the standard door opening, and the interior floor lifted above the original foundation floor level to avoid moisture and bug buildup. In contrast, the bull pen floor height appeared on level with the Tian-jing sink bottom; likely left unfinished to save on construction costs. The pig pen enjoyed the Tian-

jing along the north-south axis, and the floor level matched that of the bull pen which sat on the unfinished mud floor. Two bedrooms stood on either side of the pig pen along the southern façade of the architecture, and both rooms served as the private bedrooms for the brothers of Mao. The architecture not only shelters its inhabitants from nature, it hosts a mini-ecosystem within; The Mao family home shows a nuclear example of the indivisible connection between men, food, and the land that sustain the agrarian life and culture.

I exited the house through the rear door beneath a roofed arcade running along the outside the south-eastern bedroom and around the eastern façade of the residence. A small, narrow channel wrapped around the periphery of the building to drain away the water that dripped from the upper roof tiles. Two doors sat along the eastern façade, both were utility doors, one connected to the privy, and the other to the firewood storage room[2], the latter also connected directly onto a small path that lead up to the back hill. A small stone bridge connected the rear threshold across the narrow water channel onto the paved trail to a fire safety pond near the south-east corner of the residence. An additional trail elevated with the adjacent terraces to access a small flat clearing for drying grain before winter storage.

I booked the noon train from Shaoshan to Changsha the night before. I realized it had already been almost 10:00a.m. by the time I stood on the small clearing, so I rushed back against the current of gathering visitors to find my way back to the rail station. Although the lady who came up the valley with me pointed towards a spot near where we got off the car to hitch the village bus by speaking in the local dialect, I saw no bus queue near the tri-intersection. I entered the great memorial Avenue to look for an alternate stop on the other end. The avenue aligned on a south-west axis from the Mao former residence to the Mao family ancestral hall. A heightened statue of Mao stood at the end of the axis looking across the length of the path towards his childhood home to the north-east.

Two Mao Ancestral Shrines stood by the great avenue. The first Mao Ancestral Hall stood perpendicular to the path, it sat against the hill to the south-east and oriented towards the north-west. The Mao Memorial Exhibition Hall to the north continued the original alignment of the Mall

2 The firewood door held a fair significance in local customs regarding family fortunes. The firewood door (柴门) sounded phonically similar to the money door (财门) in southern dialect. Mao Zedong's mother took great efforts to expand the grandiosity of the threshold within the means of the family at the time of the construction. The door contained vertical lintels much like the front door, and the lintels also carried the unique symbols that carried the fortunes of the family.


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Figure 7.8 *Mao Ancestral Hall converted into a public classroom.*

Ancestral Hall and opened its front entrance towards the grand plaza at the end of the avenue. A second Mao Ancestral Family Shrine stood towards the end of the path to the south of the Mao Ancestral Hall, the shrine oriented orthogonally towards the west and the status of Mao stood in east-west axis to the shrine.

The Mao Ancestral Hall was constructed in 1763 during the height of the imperial Qing dynasty. Plastered grey-brick structural fire-walls framed the structure of the ancestral hall. The public hall included an entrance hall, a latitudinal Tian-jing courtyard with two Tian-jing on each side of the roofed steps connected to a large open hall, a connection hall, another set of Tian-jing courtyard with two Tian-jing on each side of the roofed stone stairs with an arcade with matching stairs, and the final worship room. In comparison to the family residential architecture, where the buildings and chambers surrounded a Tian-jing courtyard, the left-over spaces between rows of buildings performed as the Tian-jing openings within the Mao Ancestral Hall.

The Mao Ancestral Hall served as a public registry for the local residences in the village for hundreds of years. The Hall served as a public night school during the Republic era, Mao's first wife Yang Kaihui taught at the school for a number of years. Yang converted the large public hall in the second row of the ancestral hall into a classroom. (Figure 7.8) The rectangularity of the hall allowed for easy reconfiguration from a ceremonial space to a regular classroom. The long linear Tian-jing provided natural day-light and air circulation, and the multi-storey height allowed the cool air to remain on the ground level while the hot air flowed upwards towards the ceiling then out through the Tian-jing.

Visitors waited by the road outside the Shaoshan Inn by the Exhibition Avenue; a caravan of private tour buses stopped by the crossroad to pick up guests to various guest houses and restaurants. I followed the road, but the path circled around the great avenue park and took me back to the tri-intersection. Taxi drivers sat in their cars with their window rolled down, smoking during their break, and waiting for customers to approach them. One of the drivers agreed to take me down the mountain to the high-speed rail station for a flat fee of ¥20, and I hopped on the back of the taxi.

May 8, 2019 Travel Observations
Yuelu Academy

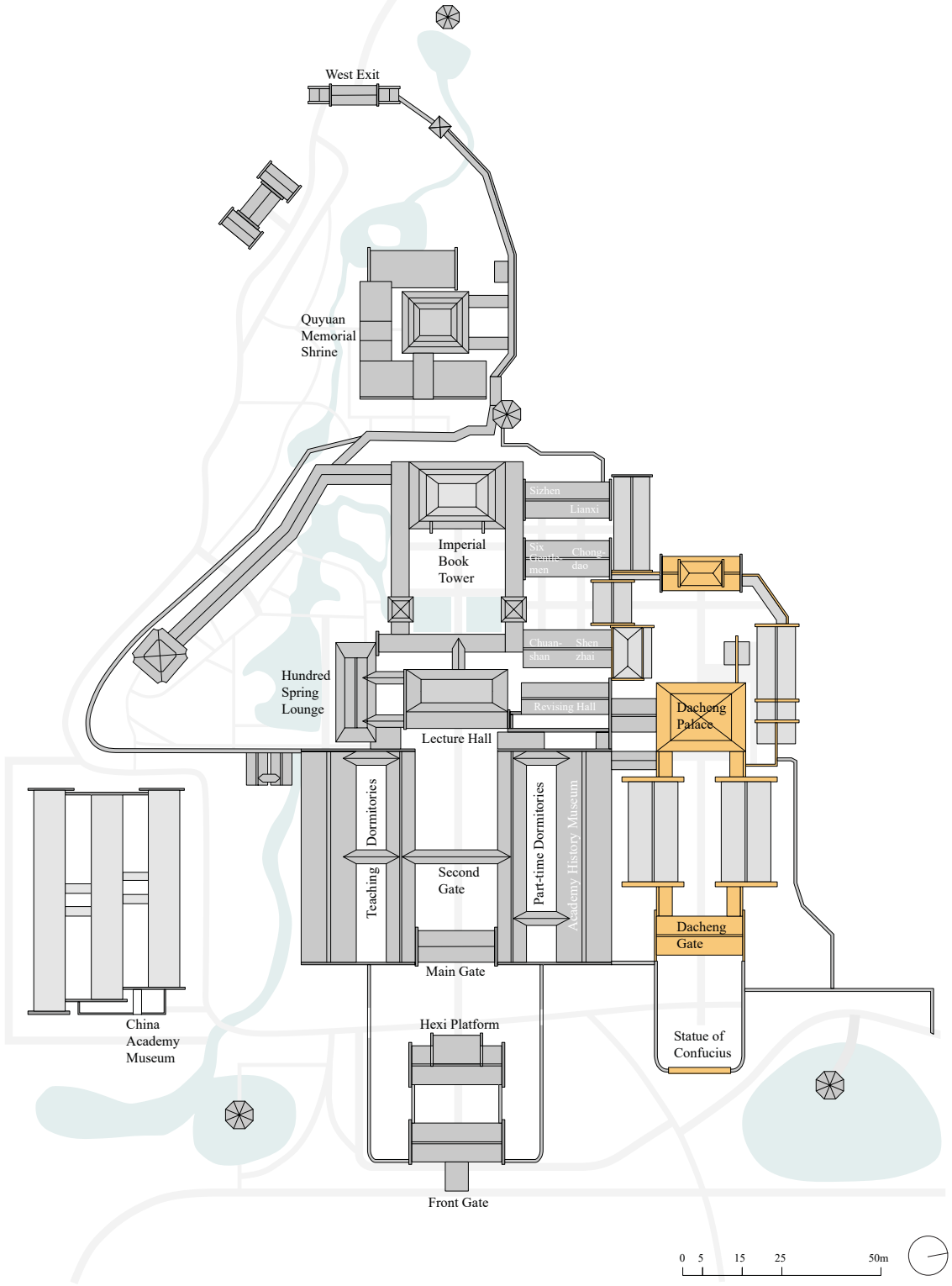
Yuelu Mountain, Yuelu District, City of Changsha, Hunan

The Yuelu Academy is the oldest surviving public educational institution in China. The original academy opened in the ninth year of Emperor Kaibao of the North Song dynasty in the tenth century. The school survived through multiple dynasty shifts and revolutions for more than a millennium, and eventually evolved into its current form as Hunan University. Thousands of the brightest students from across the country now tread the millennium old pilgrimage path to intellectual enlightenment. New classroom towers, track fields and student dormitory buildings blend seamless along the Academy Avenue that ran from the riverside to the mountain.

Figure 8.1

Yuelu Image, Ink drawing from Changsha City Records during the reign of Qing Emperor Jiaqing (1796-1820). From China Fangzhi Collection, Taiwan, 1966-1989

Figure 8.2 *Yuelu Academy Traced Tourism Map*



I had lunch at McDonalds at the Shaoshan high speed rail station. I waited upon one of two platforms that greeted passengers on the east-west rail line between Changsha and Guiyang. The bullet train to Changsha from Shaoshan only lasted 20mins, I barely sat down to admire the passing rural landscape before the cityscape pulled in and I stood up again to wait by the train doors. I wanted to experience how students would travel towards the central university grounds of the provincial capital, and I took the subway to Yuelu Mountain, the journey ended up becoming an hour long underground experience before I arrived on the western side of the Xiang River in Changsha. Metal railing lined the edges of the sidewalk and prevented public transport connection on the ground level outside the Yingwanzhen[1] subway station. I walked to an opening and hailed a cab towards the Academy grounds on the hill.

Due to the construction on the road near the base of the Yuelu Mountain, the car took a detour and raced parallel to the Xiang River and the Juzhou Island. The taxi eventually made a turn from the riverside drive, entered through the Lushan stone archway, and drove onto a tree canopied grand avenue perpendicular to the Xiang River. The driver dropped me off at the fork of the road where a statue of Chairman Mao stood upon a tall podium in the center of a triangular piazza.

I took the path to the left of the piazza where small food shops aligned the streets selling fast meals and snacks. I followed my memory of my last visit to the mountain with my uncle in 2016, when he drove up the hill and parked along the pathway halfway up mountain. I learned later through historic maps that the uphill path led towards the Lushan Temple at the helm of the mountain, one of the oldest relics of early Buddhism in Hunan since AD268. A monk named Tao Kan (AD259-334) walked down from the temple and built himself a hermitage during the Eastern Jin dynasty. The original site continued as a hermitage until monk Zhi Rui of the late Tang dynasty open the doors of the institution as a public academy in AD958[2].

The winding pilgrimage path passed by the rear entrance of the Yuelu Academy where I last entered the museum grounds. I obtained a student pass from the small ticket box operated from the windows of the side chamber at the entrance gate[3]. I realized I must have entered from the rear entrance when a screen of bamboo unveiled beyond the gated

1 映湾镇

2 The political governance shifted from military generals to literary politicians in the Northern Song dynasty in 10th century, and the empire began to fund institutions that support the new political model. The institution became one of hundreds of academies that benefits from the imperial examinations system and the Yuelu academy emerged from the cocoon of the metamorphosing hermitage in AD976. (Li and others 2016)

3 The institution had become a tourist destination for guests visiting provincial capital Changsha and those who are interested in the famous university grounds, few know the site as the first ground of institutional education in China prior to their visit.

threshold. A passage led left toward a breezeway along the back hill, and an external building upon a landscaped moss garden with stone bridge and narrow stream emerged beyond the veil of bamboo trees (Figure 8.3). The first section breezeway bordered a retaining wall along the edge of the property. Two wooden bridges diverged from the passage and led towards second level doors on the back façade of the external building to the west. The rest of the breezeway followed the topography of the hill and gently stepped downwards towards the rear the of the academy compound.

I followed along the rear compound walls and crossed through the back garden towards the external building. I questioned the authenticity of the construction upon my immediate entrance because the architecture followed an uncharacteristic northern style large rectangular front courtyard. The building block contained two sets of small square Tian-jings at the two rear sides of the central building, and neither provided any practical functions for the architecture; The Tian-jings represented only a symbolic use of the southern building technique in a pseudo-classic building[4].

Poetry adorned along the columns of the main building along the façade and within the interior chamber. An ink portrait hung in the center wall, and copies of poetry lined along the walls. I learned at this

4 The original grounds of the external building that contained the first Hunan university dormitories from early 20th century had burned to the grounds from Japanese air raids in April 1938 and April 1941. Restoration and expansion of Hunan University began after the national economic reform in early 1980s and the current old academy buildings completed restoration in 1986. (Li and others 2016)

Figure 8.3 *View eastward towards the back garden and the Quyuan Memorial Shrine from the West Entrance (Rear Entrance)*

point that this was a temple dedicated to the Quyuan (c.340-278 BC)[5], a prolific poet and patriot who lived during the Warring State Period of China. The original temple of Quyuan built in 1796 stood higher on the mountain north of the Yuelu academy. Due to flood prevention work and environmental concerns, the Hunan University relocated the original Temple to the current location within the Yuelu Academy grounds in 2004.

The leftover spaces between the garden wall and academy architecture created opportunities for small picturesque Tian-jing landscape gardens with framed benches to appear periodically along the breezeway. (Figure 8.4) As the stele arcade eventually connected with the restored Imperial Book Tower courtyard, I entered the rear garden following the series of Tian-jing gardens. The remaining section of arcade wrapped around the perimeter of the western landscaped garden. The scenery of the garden changed every few steps with the play on perspective from different angles. The landscape shifted between small Tian-jings garden to rock gardens and flowing water course crossing through the courtyards. I sat at the little stone stool on the man-made peninsula at the largest pond in the academy garden, and snacked on roasted pumpkin seeds. A large group of students shepherded by their teachers rushed into the garden and surrounded my small area of repose.

Figure 8.4 *Pictureque Tian-jing gardens opening along the aracade*

5 Quyuan wrote numerous romantic poems regarding life and love of his country. He committed suicide in the Miluo River upon the downfall of his home country on the fifth day of the fifth month of the lunar calendar. Legend said that the people mourned his death and rowed boats to throw packets of rice and dumplings in the waters to prevent fishes from eating his flesh. The tradition spread throughout the land and continued annually to modern day — is known as the Dragon Boat Festival across the world.

6 四箴亭 - Pavilion built to honor the four great Song dynasty academicians Chen Yi and Chen Yi (phonetically similar). Original pavilion built behind the current Imperial academy grounds. Pavilion rebuilt in 1624, and removed to current location in 1818.

7 濂溪祠 - Temple built to honor Teacher Chou Dunyi, otherwise known as Master Lianxi, original temple built in 1812 where the current Six Gentlemen Hall was, the current temple was relocated in 1820.

Other students noticed the golden Koi swimming in the water, and flooded to the bank of the pond. I let go my seat and returned to the arcade towards threshold to the next courtyard. At the end of the arcade, the half of an air tower sat across the arcade wall dividing the western landscape garden from the Imperial Book Tower courtyard, and a hexagonal window on the wall provided visual access from the garden across the courtyard.

The Imperial Book Tower stood in the end of the former axis from the Lushan Stone Arch on the bank of the Xiang River. The arcade wrapped around the on three sides of the formal courtyard space of library tower. Two rectangular fire-safety pools in the front of the courtyard connected with the water feature across the western side of the academy grounds (Figure 8.5). The 1938 Japanese air raid and subsequent Changsha fire destroyed over 90% of the city including the Imperial Book Tower and other main buildings of the academy. I retraced uphill along the arcade within the Imperial Book Tower courtyard, which aligned in parallel with the stele arcade towards the western inner garden and the Sizhen Pavilion and Lianxi Temple courtyard to the east.

The Sizhen Pavilion[6] and Lianxi Temple[7] shared a duo courtyard with the row of chambers parallel to the south. A walled pavilion on the northern edge of the arcade divides the academy courtyard to the imperial academy grounds to the north. The Six Gentlemen Hall[8], the Zhongdao Temple[9], Chuanshan Temple and Shenzhai Temple courtyard (Figure 8.6) stood parallel to the chambers mentioned above and connected with

8 六君子堂 - Hall dedicated to six benefactors of the academy between the Song to the Ming dynasty. Original Hall built in 1526, removed to current location in 1820. Later benefactors also received a place of honorable mention within the walls of the hall.

9 崇道祠 - Temple built to honor academicians Zhu Jia and Zhang Shi. Original temple built in the location behind the main lecture hall and in the place of the Imperial Book Tower in 1494, removed to current location in 1776, and built in 1868.

Figure 8.5 *View of the Academy garden pond and reposing island from the Hundred Spring Pavilion*

eastern arcade of the Imperial Book Tower courtyard. The singular access of the memorial halls created semi-private courtyards that branched beyond the central progression of the Academy. Although the separation of the courtyards caused disconnection between the memorial building and public spaces with the rest of the Academy, the division allowed for a superior fire separation of the original architecture. Apart from a small rectangular Tian-jing behind a closed door between the Imperial Book Tower and the Sizhen Pavilion, all the immediate courtyards were spatial openings made from building groups, and not architectural openings between building elements. The architecture displayed the high level of respect paid to the memorial buildings with the use of the formal courtyard instead of Tian-jing openings.

The central lecture hall contained the largest interior space in the original academy, where shear walls on three sides supported the double pitched roof, and four central posts provided additional support of the lumber roof structure. (Figure 8.7) The four columns created a staging space in the middle of the room where two wooden armchairs stood upon an elevated podium. Large calligraphy characters of Confucian philosophy lined the two side walls, and enormous wooden plaques with gifted text from various Emperors crossed the center beams above the podium space. The texts of piety and order along the surfaces presented a

Figure 8.6 *View of the Six Gentlemen Hall and Zhongdao Shrine from the adjacent arcade*

Figure 8.7 *Yuelue Academy lecture hall,* 嶽麓書院講堂 *, from Wikipedia Commons. Photograph by Zhangzhugang, 2014.3.4.*

space of endorsed ideals and order. Similar setting of large characters texts and banners propagated on the streets and walls across China for decades after several revolutionary movements since the late 1950s. Whether the current decoration accurately illustrates the Qing dynasty interior or the 1980s idea of the past academy is difficult to evaluate. However, in the Academy History Exhibition, a series of ink paintings and models showed older versions of the Yuelu Academy with only the Lecture Hall and the residence wings. More representations illustrated similar scenes of lecturers sitting in the hall while rows of students attentively listened in the courtyard. The 1986 rebuilt lecture space represented more of a 1:1 model of a museum artifact rather than a historical record of the past; little evidence of erosion were visible in the space to suggest any practical use of the hall other than a scaled recreation of an object building, but not a piece of living architecture. While some visitors admired the elegant calligraphy on the wall, many others were confused over where to look in the complete lack of focus in the space. If the exhibition could provide some elements of interaction between the architecture and the audience, the people would leave the academy grounds with a better understanding of traditional Chinese education, culture, and architecture.

The interstice between the Imperial Book Tower courtyard and the Main Lecture Hall hosted one Tian-jing on each adjacent side of the main axis. These elements functioned as fire-proofing space and drainage

Figure 8.8 *Left: View of the north interstital Tian-jing*

Figure 8.9 *Right: View of the south interstital Tian-jing*

methods for the roofs of the two parallel arcades of the neighboring courtyards (Figure 8.8 & 8.9). The Tian-jing also repeated on the eastern side of the lecture hall, which provided a more discreet access to the student dormitories courtyards away from the center route.

Each dormitory comprised of two sets of linear Tian-jing building groups parallel on either sides south of the main lecture hall. Students or visitors entered each courtyard on the northern end of the linear courtyard or through an additional threshold near the central avenue. The Tian-jing drains within each set of dormitories ran almost as long as 50m courtyard, measured 3.5m wide within the 8m wide courtyard including the arcades on two sides. Each set of open courtyards contained a roofed section breaking the linear Tian-jing, either towards the middle or near the end of the courtyard depending on the connection spot with the central axis. traditional Tian-jings with single or double water drain holes on the side wall, these Tian-jing sinks used peripheral water drainers topped with silted limestone with additional side drainers to increase drainage capacity.

Each set of dormitories contained two rows of linear buildings

around a central Tian-jing (Figure 8.10), the building adjacent the central avenue measured half as wide in comparison to the outer building. The linear architecture hosted interior span width between 3m to 10m across a length of 50m. The original dormitories sets each contained 30 chambers before the destruction in the Sino-Japanese war, and the 1985 reconstruction returned the dormitories to the original Song dynasty model of 52 chambers in each wings. Students no longer lived in the Academy dormitories; the academy divided many of the chambers into separate chambers, readapted for club houses and student facilities for Hunan University, and transformed the northern dormitories into the Millennial Academy History Museum.

As I strolled downed the museum and reentered the central avenue through the south-east end of the eastern dormitories, I realized I had skipped through the formal progression along the central access. I walked against the movements of the tourists and moved eastwards towards the Main Gate. The pitched roof of the Main Gate spanned from the two small chambers attached to either adjacent residence halls. The restored gatehouse received equilateral material treatment across the inside and outside of the academy ground; those crossing the threshold cannot distinguish between arrival and departure, thus the opening only acted a medium of passage but not a significant place of entrance. In traditional

Figure 8.10 *View of the southern dormitories from the western entrance*

Chinese cultural, the gatehouse held the important concept of acceptance or rejection. Thus it is important to show the difference between those specific thresholds to mark the change from one place to another, both physically and mentally. Moreover, the reconstruction interpretation lacked attention to spatial concept of the unique spaces, so much so that the Main Gate showed very little differentiation to the Second Gate in the middle section of the central progression.

I quickly passed down the entrance stairs to give way to a visitor who wished to take photographs in front of the academy gates. On the Hexi platform[10], a small pavilion in the center of the entrance courtyard, human size characters "prosperity" (福) and "longevity" (寿) aligned each of the north and south walls of the pavilion. The dropped wood ceiling contained an octagonal inset with a Taoist ying-yang craving encircled by bats[11]. Two low walls enclosed space between the Hexi pavilion and the Front Gate, and the connection formed a smaller courtyard between the two buildings within the larger plaza in front of the Main Gate. The visitors who passed through the Front Gate enter a relatively small exterior vestibule-like space, and must climb onto the Hexi Platform to see the Main Gate façade and witness the expanding scenery of central academy axis. (Figure 8.11) The front Gate was relatively modest in scale compared to the larger main buildings in the center of the Academy. The low profiling of entrances and inconspicuous facades was prevalent across traditional Chinese architecture; the theme repeated amongst the Hunan Tian-jing compounds, where the art of the sequence was to amaze the passenger more and more as they proceed further into the complex.

I took the circular doorway on the side wall between the Gatehouse and the Platform and strolled back to the front plaza. An extravagant archway stood along the Academy wall to the north, and an additional gate walls lined beyond the first boundary. The red gate walls caught my attention as oppose to the grey walls lining the academy periphery. Red walls in traditional Chinese architecture tend to be understood synonymous with the walls of Buddhist monasteries or the Imperial gates of the Forbidden City in Beijing. The overall structure divided the grounds of the Yuelu Academy into a separate section for the Yuelu Academy Confucian Temple. The secondary temple axis paralleled that of the central Academy progression, which begun with the statue

10 赫曦台: the crimson dawn platform. The original pavilion was built in the Southern Song dynasty (1167) on the peak of Mount Yuelu oriented towards the rising sun. The building moved to its current location in the Qing dynasty (1790), and officially renamed as the Hexi Platform. The current pavilion maintained since its last construction in 1821.

11 Although the academy originated as a Buddhist monastery, the institution had come to embrace the popular Taoism and both philosophies coexist in harmony within the Confucian education.

of Confucius near the eastern entrance courtyard towards the Dacheng Palace, and ended at the shrine of Confucius on the higher grounds of Mount Yuelu. The Shrine of Confucius served as the place of worship for the Confucian academicians since the construction of the first academy compound. The original shrine sat behind the Lecture Hall space near the current site of the Imperial Book Tower, and the current shrine received its own compound axis and building group during the Ming dynasty.

The Dacheng Gate (Figure 8.12) begins the official grounds of the Yuelu Academy Confucian Temple grounds. An open threshold connected the axis between the statues of Confucius to the ceremonial worship altar in the center of the Dacheng Palace. The east and west residence wing of the Temple encircled the great avenue connecting the Dacheng Gate to the Dacheng Palace with an arcade running along the periphery of the large courtyard. The residence chambers hid behind a façade of red wooden screen doors and imperial yellow curtains. Tags along the rooms indicate that the Hunan University had converted the chambers into undergraduate offices and masters' studios.

The central hall of the compound progression hosted the Dacheng Palace[12]; the name of the building implied the aspiration for great things, and many Confucian temples across the oriental countries often carried the same name. The column arrangement between the wall columns of the

12 大成殿

Figure 8.11 *View of the Main Gates from the Hexi Platform. From the Hunan Provincial Government, photographed by Wang Cai*

Figure 8.12 *Left: Axis of the Dacheng Palace from the Gate*

Figure 8.13 *Right: Connecting Tianjing from the Dacheng Palace*

main floor and the structural support columns of the upper levels allowed a natural spatial division between the central space and side chambers. A scroll painting of Confucius hung in the center of the space, the graphic representation and ceremonial incense altar both positioned beneath an azure octagonal ceiling recess with a golden dragon. Imperial dynasties from the Han Chinese Song dynasty to the Manchurian Qing dynasty all supported the Confucian education which emphasized social obedience and piety towards one's elders and emperor. The dragon symbolized the son of the heaven, and his overseeing presence above the worship space suggested his endorsement on the legitimacy of this educational institution.

A side door on the southern wall of the Dacheng Temple Palace led directly to the front of the Lecture Hall through a linear Tian-jing courtyard (Figure 8.13). The connection between the Confucian Temple grounds and the Academy grounds were linked with a Tian-jing courtyard and fire walls, both of which acted as spatial and architectural fire separations. The Yuelu Academy faced multiple wars and conflicts throughout its millennial history; it had been destroyed and reconstructed

seven times prior to the end of the Qing dynasty. Each rendition of the academy learned lessons from the previous one and subsequently strengthened the architecture in fire-safety building knowledge.

I strolled through the student residence Tian-jing and across the front of the lecture hall towards the southern rows of teaching dormitories. Many of the chambers in the southern dormitories were lent to various students associations of the Hunan University like that of the northern dormitories, and a spacious museum souvenir shop took the place of the Academy History Museum in the mirrored plan. The interior of the souvenir shop presented a modern commercial interpretation of the heritage space. Natural wooden furnishing rested on grey ceramic tiles which referenced traditional stone tile floors, merchandise bathed in LED light illuminated from a discreet wooden lattice dropped ceiling, and semitransparent wooden lattice door systems divided different sections between smaller articles and larger furniture pieces. The southern side exist of the souvenir store took the visitor near the lower section of water stream and water pond at the south-eastern edge of the academy grounds. (Figure 8.14)

A large modern construction of the China Academy Museum stood on top at the edge of the southern site. Large deciduous trees detensified the monolithic concrete façade, and helped the modern architecture to

Figure 8.14 *Looking upon Mount Yuelu from the China Academy Museum entrance, Teaching Dormitories in the foreground*

blend more with the grey walls of the older architecture. The China Academy Museum complex comprised of three row buildings in an attempt to recreate Tian-jings between the section, but the capped glass ceiling of the hollow sections created tall interior atriums as opposed to the open-to-air Tian-jings. The designer made many attempts within the museum to input small interior light wells to replicate traditional architecture. (Figure 8.16) However, the spaces adjacent to the atrium were either solid walls or disconnected balconies. Both of which had little functional use, neither visual response nor physical connection with the air-tight "Tian-jing" spaces. In traditional building, the Tian-jing acted as an important intermediary or spatial lubricant between various spaces that also provide access to air and light. The introspective museum disconnected itself from the larger academy grounds by surrounding the complex within a sunken garden around the architecture, and the vast majority of the exterior windows look at scenes within the concrete garden as oppose to possible select views of the older academy grounds. The concrete garden contained little vegetation, and moss permeated on the concrete tiles and along the nooks and crannies of the yard. The designer placed the shrubbery plants on the interior Tian-ijing in the atrium step style, making the space into an interior greenhouse. (Figure 8.15) It appeared to me a strange idea to build a separate institutional museum to exhibit artifacts and textual recordings, when the actual campus with actual space and dimension that allow visitors to touch and feel stood empty of displays.

I left the academy through the front gates, flowing against the afternoon traffic of mini-vans picking up children at the local primary school. The architecture near the entrance of the old academy mimicked the classical Chinese architecture style, and the building style gradually became more modern as I walked near the Eastern Red Plaza where Chairman Mao stood. I hailed a cab at the edge of plaza towards the city proper of Changsha on the western side of the Xiang River. The driver complained about the afternoon traffic rush and advocated to cross the river by the southern tunnel. He drove south-east along the mile long local road that is populated building after building of independent student residences, restaurants, and small businesses catering to the three universities in the area.

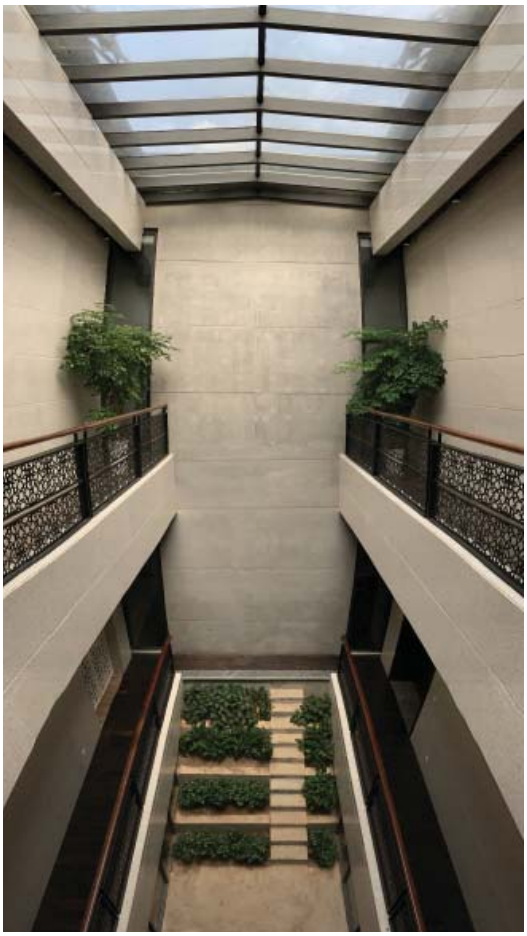


Figure 8.15 *Left: Interior Tian-jing of the China Academy Museum*

Figure 8.16 *Right: Lighting illuminating upon the model courtyard of an earlier version of the academy from an interior Tian-jing light-well*

In the restored Yuelu Academy, the architecture of the Tian-jing dormitories remained comfortable and adaptive in both curatorial, commercial, office and studio uses for the university. Some of the trees that were growing in connecting Tian-jings had been planted during the Qing dynasty – and are now over two hundred years old. Perhaps just as the architecture offered a home to the vegetation, the trees also offered protection to the architecture. Although many buildings of the old Yuelu Academy no longer performed the functions of its original design, the spirit of the institution had expanded immeasurably beyond the old school walls. The tree of knowledge shall grow beyond the small physical boundaries of the Tian-jings, the gardens, the courtyards, the walls, the city, the province, and will continue to expand far and wide to provide shade and nutrients to its propagated seeds.

Conclusion: Eight Memos from Tian-jing

1. One out of many, many out of one

The Tian-jing space, from the cut through the roof to the drain, connects the outer environment to a roofed interior. This spatial void is an object which gives rise to the surrounding Tian-jing courtyard. Buildings surround the courtyard, then more courtyards surround the buildings, and so on and so forth; the assemblage of many individual objects constitutes the collective Tian-jing compound. Although the totality of the compound appears as an object within the larger landscape, the design concept of the Tian-jing compound represents modular building in a village or neighborhood scale. The modules are already in place before the time of computer aided drawings, yet the size and shape of modules, the underlaying infrastructure and the ease of replicability allow for modern interpretations, modifications, and additions to existing compounds or villages.

The field investigation of eight Tian-jing compounds shows a variety sizes and shapes of spatial modules, and how the individual modules connect together. The majority of Tian-jing openings fall under either square openings or linear openings. The courtyard surrounding the Tian-jing also varies in size and proportion with respect to the opening. The rectangular courtyards work well with private families within connected neighborhoods. Linear row type courtyards promote an institutional organization of the rooms, and allow for continuous repetitions of the spatial modules.

Journal	*Compound*	*Tian-jings standards (m)*	*Courtyard standard (m)*	*Tian-jing/ courtyard ratio*	*Type*
1	Li Family	2.5x7.5	5x10	37.5%	Linear Tian-jings openings
2	Zhu Family	3x3	5x5	36%	Tian-jing openings
3	Zeng Guofan	3x4, 2.5x9, 2x20	6x7, 5x12.5, 4.5x25	28%, 36%, 35%	Square courtyards openings for residential, linear openings for public or utility
4	Zhang Guying	2x3	6x10	10%	Rectangular courtyards
5	Yinjiatang	2x9.5+2(2x14), 1.8x2	5x40, 3.75x3.75	23.5%, 25%	Linear Tian-jings courtyards, and minor uses of Tian-jing openings
6	Dongshan Academy	2.3x15	5.6x17.5	35%	Linear Tian-jings, and minor use of square courtyards openings
7	Mao Zedong	3.5x12	5x15	56%	Tian-jing Courtyard
8	Yuelue Aademy	3.5x45	8x50	39%	Linear Tian-jings, and minor use of Tian-jing openings for landscaping

Figure 1.1 *Graph of standard Tian-jing to courthyard ratios and types of the case study compounds*

Family compounds of Li, Zhu, and Zeng show an average Tian-jing to courtyard area ratio of roughly 1:3. Most of the Tian-jing courtyards from the above 3 compounds have on average 1-1.5m landing and roof overhang around the drainage sinks. The limited space around the drainage sinks prevents multi-purpose use of the semi-exterior space for the inhabitants. Zhang Guying village stands as an anomaly to the data—the Tian-jing to courtyards area ratio of 1:10 is much smaller compared to the rest. The over-arching roof systems cover the majority of the Tian-jing courtyards, yet the size and proportion of the openings allows the semi-exterior spaces to be both adequately illuminated and sheltered from the outside weather. The 6x10m courtyards give neighbors adequate personal space yet maintain familiarity between each other, and provide enough room for outside visitors to pass through. The larger courtyards allow inhabitants to utilize the space for various uses, yet the modest area and height of the spaces does not appear empty or inhospitable even when nothing is going on.

Yinjiatang employs an institutional plan of linear Tian-jing courtyards which the typical Tian-jing span only 23.5% of the courtyard. Although each chamber on average receive less Tian-jing opening, the plan grants slighter larger semi-exterior spaces that allow for shared multi-purpose activities. The linear spatial arrangement could be easily repeated with attachments onto the existing plan.

The institutional compounds, Dongshan Academy and Yuelu Academy, both use the linear Tian-jing courtyards for the dormitories. The Tian-jing courtyards themselves take up 35-39% of the courtyard. At Dongshan Academy, the 1m corridor around the drainage felt uncomfortable to walk around, and the general space felt too narrow to conduct any other activities. At Yuelu Academy, the 2m corridor around the drainage sinks felt very comfortable to walk in, yet the linear form restricts the functional flexibility of the Tian-jing courtyards.

The availability of flat land limits the applicability of the Tian-jing modules. The approachable size of the rectangular courtyards and human scale corridors create a sense of intimacy in the semi-public courtyards. Yet the linear Tian-jing modules prove to be more efficient in land coverage than the rectangular counterpart, and all the chambers have similar access to the light source and orientation. The width and depth of

the Tian-jing courtyard determine the appropriate height of the interior buildings, where most Tian-jing buildings do not exceed two stories due to the limited opening of the courtyard.

Underlying infrastructures act as the spine of the module system, and are the determining factor of the shape and size of the overall complex. The service pipes beneath road systems determine the logic of the North American suburban neighborhoods, but also create cul-de-sacs and disconnected neighborhoods. The graywater drainage crawl spaces beneath the Tian-jing compounds perform as the equivalent underlay infrastructure to the North American sewage lines. Modules could be added or rebuilt upon the existing infrastructure system, and the ease of addition or maintenance of the infrastructure determine the longevity and flexibility of the overall architecture. Rectangular courtyards greatly depend on the underlying infrastructure, because the modules are usually built upon a large connected grid system. In contrast, the linear courtyards are more resilient, where the failure of one Tian-jing sink could be covered by the redundancy of another. Furthermore, the linear formation of sinks does not require pre-installed drainage system, and allow for easier repeated planimetric additions to the compound as the institutions develop overtime.

In conclusion, small Tian-jing openings to courtyard ratio create a more active semi-public space for the surrounding chambers. The varying amount of use and adaptability shows the effects from the minute variation on the scale and proportions of the courtyards. Moreover, the use of modules also requires a plan of an underlaying infrastructure, which acts as a skeleton for the working parts.

2. On the interior quality of architecture

Many graduates of architecture schools have learned to dismiss the practice and value of interior design. In my first year, one of my design professors scoffed at interior designers for being “pillow puffers”. The trend seemed to be exacerbated by the unmanageably colossal scales of studio design projects, where the attention of the students focuses on the grand concepts, and little time could be spared to refine the interiors. In the corporate design firms, the division of labor between the design departments and consultants further the segregation of the two disciplines.

However, in smaller design projects, the principal architect or the student have more opportunities to critique through every area of the building, from the façade to the cabinet knobs. How and what tools could designers take from the Tian-jing compounds to improve expansive buildings?

To answer the first question, we must dissect the subject typology. The Tian-jing compound is an example of carpet architecture that rolls out into the landscape. Despite being flat, the Tian-jing courtyards contribute to the unique sectional qualities of the larger architecture. The Tian-jings, or the sky wells, provide sources of light and circulation, and act as open pockets on the expanding carpet. In addition to being elemental devices, the courtyards also perform a critical function as the individual spatial organizers within the larger convention; the compound is not a singular object—it is a broad collection of small spaces.

How do designers improve the connection between the interior and exterior for a large and flat building? In order to make the occupants of a continuous piece of mass to feel comfortable, the container must become lighter in density. The Tian-jings allow light to penetrate from the perpendicular axis of building, yet the majority of the building remain dense along the parallel axis of the architecture. Since light shine from above, thus the Tian-jing must use indirect reflection within, such as internal visual axis across multiple units. The interior axis could be pedestrian corridors, or operable thresholds, or public halls, or linear Tian-jing courtyards; they perform as transportation, communication, or additional climate devices. Such devise sometimes borrow light through adjacent courtyards, or Tian-jings. Although these spaces are more often small or narrow, their expansive coverage throughout the system adds additional functions and a sense of connection within the larger architecture.

When dealing with horizontal expansions, it does not necessarily mean the building has a set space height throughout the length. Having variations in section in different points of the building create unique spaces for different programs or functions. The Rolex Learning Center by SANAA and the Illinois Institute of Technology Campus Center by OMA both utilize shifting interior elevation and section to construct separate spaces in large open plans. The Tian-jing courtyards, open pockets of left-over spaces, criss-crossing passageways, and new built

in-fills within the Li Family Compound and the Zhanguying Village are all areas of changing sectional openings and elevational changes within the architectural organizations. Higher room height elongates smaller spaces and relieves the oppression of narrow corridors, and makes small Tian-jing courtyards feel larger than an enclosed room; conversely, lower ceiling height could be used in private spaces to give a sense of intimacy. When used in contrast, varying sectional heights promote distinct public or private interior spaces within the larger architecture.

The original purpose of architecture is to protect humans from nature, yet humanity inescapably is apart of the cosmos. Architecture is a reflection of humanity—a microcosm within the larger universe. The earth uses the atmosphere to protect itself from outer space, and walls protect buildings and cities from alien forces. Yet both objects require outer sources to provide energy and sustenance for the health of its occupants; all living beings require the sun, the moon, the wind and water. The Tian-jing, being a conduit between the heaven and earth, connects the compound with the natural elements. Multiple openings in the compound ensure the healthy flow of substance to flow through the body for cooling and self cleaning. The graywater that flow through the architecture eventually fall into the fields surrounding the compounds, grow into the grain that feed the people within.

3. Of contrasting size and proportions

When I first entered architecture school, I did not understand the difference between a column and a beam. Yet I found myself, on the first day of studio, plunging into a visualization project to illustrate a vaguely written description of a pavilion on a podium with a pool against a wall supporting a floating roof. There are a thousand Hamlets with a thousand audiences; two weeks later, the seventy-five students showed up with seventy-five different interpretations from the same brief. We found out during the critique that the text referenced a description of Mies van der Rohe's Barcelona pavilion. However, as we gained more knowledge on the limitation on sizes and physical quality of material, our class designed with more restrain and lesser variation. Our ideas on the material quality were not intuitively inspired or systematically taught, but learned from building codes or design guides for North American

standards; documented structural qualities of standardized building parts set a framework for specific spatial proportions, best architectural and zoning practices. This framework became the "box" that new designers worked around.

Original Tian-jing compounds followed the Chinese imperial building standards[1], and sourced appropriate grades of lumber and brick with respect to the time period. Due to the civilian rank of the original clients, the material grade limited the size of the rooms and proportion of the rooms. The technological material constraints and lower average human height created a difference in spatial proportion in comparison to the North American buildings. Despite the technological and material challenges presented to the builders, the "smaller" spaces of the Tian-jing compounds were not necessarily small in scale across the entire architecture, but more narrow or shorter in specific areas such as narrow but tall corridors, slight gaps between buildings, and small thresholds leading into large spaces. The use of multiple scales through the building confuses the common perception to see some space larger than the actual size. The Romans applied the same design technique on the Pantheon, where a relatively small and shaded doorway adjoined the larger and illuminated interior—by contrasting the differences in spatial proportions, the consecrate space appeared grander and divine. Upon first entering the Zhangguying village, visitors and residents alike must usher through the modest doorway of the Dang Damen compound and arrive in the first entrance courtyard. Visitors could see the remaining courtyards through the open central doors, which visually elongates the small public vestibule. The three subsequent courtyards after the first, all divided from each other by structural wooden divisions, appear deeper and grander with each bigger Tian-jing openings; the spaces transition from the tight thresholds towards open rooms illuminated from the Tian-jings, again and again. The juxtaposition of varying proportions set the transitional spaces against the main spaces, highlighting the spatial experience of passage.

When I started the first studio project, I had no set idea on the scale of the columns, beams, doors, windows, or roof span, so I opened Neufert Architects' Data and learned of some spatial combinations (which I referred back to again and again.) Seeing the Tian-jings allowed me to

1 李诫 Jie Li, 营造法式 Yingzao Fashi: Treatise on Architectural Methods Or State Building Standards (North Song: 1100).

unlearn some of the preeminent ideas on working with the plan, and see the multiple layers and sections of texture sown onto the architectural carpet. The Tian-jing compound builders did not try to work beyond the "box", but worked within it by breaking its volume into varying chunks. They avoided making spaces for singular uses—even for the corridors, which alone provided transportation, cooling, and fire-prevention—or "multi-purpose" spaces with non specific uses. Not very space needs to become a theater, but the contrasting spatial proportions between spaces create dialogues between the different functions, and invite more people into the box.

4. On urban planning

Northern American planners from the mid-20th century attempted to maximize the number of houses in suburban subdivisions by aligning the buildings along the local roads, which carried the service infrastructures including: sewage, water, gas, and electricity. On the architectural level, the planning logic of the individual chambers along the Tian-jings in the compounds appears to parallel the suburban plan; yet the former is a closed urban-scale system independent from the buildings, and the latter is an open system interdependent with the building structure and the spatial organization of the architecture. Tian-jings distribute graywater through the open areas of the architecture, and allow nature light to come into the carpet architecture. The openings are not punctures on a monolithic roof system, but the left over spaces between four adjacent roofs in square courtyards or two adjacent buildings in linear courtyards. Moreover, the crawl spaces beneath the ground level ensure natural air circulation for cooling in the humid climate. In Hunan, folklore says that if a turtle could live in the crawl space from the construction of the foundation throughout the occupation of the building, the building is well built, and will bring fortunes to the residents. Nature connects directly with the interior through the spaces between the buildings, and allows the static architecture to experience the change of seasons; the interactions create a dialogue between the house and the occupants, and give the residents a sense of time and space within the continuous urban fabric.

In most North American suburbs, the roads span at least 20ft or 6m across for two-way traffic[2], with 4ft or 0.7m minimal sidewalks,

2 Steve McCutchan, "How Wide Should a Neighborhood Street Be? - Part 1," PlannersWeb, January 15, 2014, http://plannersweb.com/2013/09/wide-neighborhood-street-part-1/)

and 11ft 6in or 3.5m minimal front yard setback[3] for both sides of the street; in total, the minimal distance between two houses in suburban neighborhoods require at least 51ft or 15m between each other. All the above measurements sustain a vehicular urban strategy, rather than a human scale neighborhood. In a rectangular section of a neighborhood in Cambridge, ON, measuring about 200m x 200m, two blocks of 28 houses of approximately 8x20m each lay back to back to parallel streets. The Dang Damen compound In the Zhangguyinag village measures approximately 100m x 100m, containing over 50 households approximately 5x15m each. The density of the Dang Damen compound is about four times than that of the suburban neighborhood division. In Li Family Compound, the four eastern houses measure about 100x50m, with attached sections of 25x25m and 25x50m, to a total of 6875 metres squared. Assuming each two adjacent chambers make one household, the four eastern houses contain a total of 36 units. The density of the Li Family Compound is about 3.7 times than that of the Cambridge suburb.

The Dang Damen compound and the Li Family compound currently serves a pedestrian society where most of the residents are either retirees, farmers, craftsmen, or small business owners. Local authorities do not have strict zoning rules regarding the type of use, thus public and commercial amenities such as postal service, convenience stores, and pharmacies are scattered within the compound interior. Not every household own a vehicle, but those that do parks theirs on the periphery of the compounds. In order to apply this urban and architecture typology to practical use, we must first consider modern users who applies to the above description; people who do not or cannot use private vehicles to commute, who generally live a sedentary lifestyle, and benefit from cooperative living. College students, seniors, long-term care receivers, and work camp workers are some sample population that fit within the above criteria. Tian-jing compounds work as a campus, nursing home, rehabilitation center, or work camp, where residents could interact with each other in the public courtyards and have enough personal spaces. The separate courtyards build distinctive spaces and associations within the larger architecture, but the ease of access allows them stay connected with each other.

If applied in North America, the Tian-jing compounds could perform

3 Zoning by-Law: Lot Frontage, (City of Toronto: 2013): Zoning By-law No. 569-2013, 10.5.30.20 Lot Frontage.

as suburban campuses or medium density neighborhoods with periphery parking and public transit. The Tian-jing urban typology could fit into previous mid-town range parking lots, industrial areas, and left-over spaces in cities as an intermediate neighborhood between high or medium-rise buildings and low-rise residences. Applying the similar spatial proportions with enlarged North American dimensional standards, Tian-jing compounds could be built up to three or four stories while maintaining the interactive quality of the architecture. Since the interior are largely residential, street level commercial could surround around the periphery of the compound while maintain the Tian-jing plan. Multiple compounds could be connected with each other with sky bridges in addition to ground level connections to foster a larger open community.

5. On grayness of spatial programming

In the country-sides of Hunan, rural residents often have their front door wide open in the day time, and neighbors could come about to say hello in the morning or play cards in the afternoon. This does not mean they do not have a sense of private and publicness of their property. People close their gates after dusk. These houses are often solitary buildings that have at least 5 to 20m between each other, so it is possible for someone to completely shut themselves off from the neighborhood. When I visited Dang Damen compound in Zhangguying village, it surprised me to find most of all residences behave similarly as the single-family houses. People resided in the rooms with the door open and went about their day as usual while neighbors ran lunch services and small shops right outside their doorsteps. Visitors could walk around the connected courtyards and walk around the transverse corridors across the village

I learned in second year in architecture school about the Nolli plan, which colored the private and public areas of Rome in either black or white. Private property, shops, palaces are black, and the roads, parks and church interiors are white. As students, we learned to apply the same idea in design to distinguish the unique areas in studio projects. Thus, we generated an idea that the public or private-ness of spaces can be designed and controlled. The CCTV headquarters in Beijing, designed by OMA, contains upper level viewing lounge and exterior ground level spaces meant for open access for the public. Yet after the building opened,

the bureaucracy forbids any unauthorized individuals within the outer gates or any of the "public" areas of the site. Public and private-ness is a definition up for interpretation, and different time and place produce divergent contexts for understanding the functions and publicness of spaces.

Many architectonic typologies have a different definition of publicness to Nolli's time: highways and parking lots are technically public, yet not necessarily open for pedestrians to freely walk on or spend time at, and they generate socially dead-zones on the urban fabric; shopping malls are private spaces, but are currently the most popular place for people to congregate on weeknights and weekends, especially in times of crisis such as power shortages; schools are public spaces, but they are not open after hours; churches are in theory public spaces, but unlike the people of Rome who mostly believe in one faith in Nolli's time, modern cities have people from diverse array of faith, and may not feel comfortable in the worship place or another. Defined spatial functions change overtime with evolutions in civics and science, as do the idea of public and private-ness of spaces. In reality, there are many shades of gray as oppose to the black and white drawings of Nolli's plan. The lines of private and public spaces are blurred and sides could be interchangeable.

Appropriately sized gray spaces give neighbors a comfortable buffer space; too little distance makes hard transition between public and private, and too large of space confuses people where and how to behave. A section of the 1980 documentary *The Social Life of Small Urban Spaces*, based on the book published by William H. Whyte, examines people's behavior around the public plaza of Seagram Building in Manhattan. Whyte found that at peak hours such as lunchtime, people sit where ever they can, and at off hours, both men and women prefer benches on the edge or the ledge of the plaza[4]. The film also shows a stop animation modeling the flow of people moving about the plaza during the lunch hour: it shows that most people tend to move and settle around the plaza, and those that move across the plaza, they rarely stop to converse with another. In conclusion, the study shows that people prefer to congregate in smaller gray spaces, such as the edges, where people can sit down to socialize, as oppose to open public spaces that does not offer visitors any specific function.

4 William H. Whyte, The Social Life of Small Urban Spaces, 1st ed. (New York, NY: Project for Public Spaces, 1980), 18-19.

The land reform movements broke open the private gates since the mid-20th century, and the Tian-jing compounds have transitioned from a singular family compound to multi-family village within the course of half a century. The modular courtyards allowed the division of property within the larger household. With open access, the criss-crossing pedestrian roadways and halls become the public spaces that connect the semi-private courtyards, breaking up the monolithic block of private estate. Civil society is full of nuances, and they require gray spaces for different parties to converge and connect. Since villages and cities of the modern age do not have solid gates to repel outsiders, thus gray spaces are important transitional zones between what is public and what is private.

6. On heritage protection

In some communities, the Tian-jing compound represents an architectural artifact, which its functions could change overtime, and its persistent presence affects the surrounding urban development. These architectures evolve with the social and industrial changes of the larger society, such as Zhangguying village and Yuelu Academy. Many others, such as Zeng former residence, Mao former residence, and Dongshan Academy, live on through their historic significance. They become protected as cultural museums, and the architecture receive regular plastic surgeries to remain the way it was. The remaining, and likely the majority of Tian-jing compounds, are struggling on the brink of oblivion, and the surrounding community must suffer the consequences of its disappearance. How should we proceed with heritage architecture?

To begin any intervention with heritage architecture, we must first revisit what architecture is. There is a common fallacy in the design field that the successful design is perpetual and enduring, and has a abiding impact on the surrounding. Yet, in reality, architecture is not an everlasting construction. Architecture is a living being, and its longevity is determined by its usefulness as a shelter or a container of memories, or both. The masses will keep shelter for as long as it performs its function as the house for the owner and their worldly belongings; homes sustain the basic needs of the occupants, and host the culture of where and how people live. The monument will survive for as long it supports the current ideals, or they could reinterpret it to support the philosophies of any new

authority; an urban artifact retains the memories of the place, and why and what people live for. Being only one or the other makes the building a fragile object; therefore good architecture should strive to be a self-sustaining and flexible container.

Tian-jing compounds formerly worked as a kinship institution during a time that family law represented local authority. To impose total authority, communism broke apart family authority to insert its dominance over other governing bodies. Without the kinship institution to uphold the philosophical framework, the Tian-jing compound loses the central ancestral worship hall—the head and the spine of the architecture—and merely work as a skeleton-less body functioning on muscle memory. The architecture narrowly survived multiple phases of ideological preaching by proving its usefulness as homes. However, in the time of expeditious industrialization and urbanization, what will become of the architecture that no longer aligns with the contemporary technological expectations and social agendas?

Jean Musitelli, Ambassador and Permanent French Delegate to UNESCO, expressed on the Heritage Debate 2001 in France: "*Heritage must not become a decorative explanation of policies of territorial management missing elements of identity, nor be lost in a magma of indiscriminate developmentalism. It can constitute the connecting thread of a new understanding of the territory and of sustainable management of its context, based on a dynamic equilibrium between human activity and the presentation of the natural and built environment.*[5]" That is to say, heritage architecture must not become an expensive taxidermy of what is like to live before, nor a commercial snow globe of touristic escapism. It must survive as a self-sustaining organism with the ability to split and reproduce itself, even if it must graft its remaining limbs and previous memory onto another sturdy trunk. The Pantheon in Rome, the former temple of all gods, is also known as Santa Maria Rotonda, has evolved from the Roman pagan faith to the modern Catholic Christian church. The church benefits from the architectural monumentality and the embodied memory of the building, and the object building receives the institutional protection from the social and political organization.

Thus, the best future for heritage architecture is to host an institution that encompasses both the past and the future of the community. The

5 Jean Musitelli, "World Heritage, between Universalism and Globalization," International Journal of Cultural Property 11, no. 2 (Jan 1, 2002), 334. doi:10.1017/S0940739102771464. http://journals.cambridge.org/abstract_S0940739102771464.

original masters of the Tian-jings compounds were also students of the Confucian school and scholars who passed the imperial examination; the influential families placed great value on education and emphasized the importance of continuous learning. Dongshan Academy and Yuelu Academy are two prime examples of the heritage type. The two academies rooted itself on the traditional aspirations of education and remolded itself with the new learning institutions. Unlike rural homes that are emptying due to the allure of urbanization, the educational institutions cycle through continuous waves of fresh blood to work the old wheels of the architectural machine.

7. On complex typological sustainability

The architectonic typology, or spatial form, affects the resilience and the sustainability of the building with its flexibility to host different functions. Larger spaces could be made smaller by adding divisions, and smaller spaces could only be made bigger by breaking down the walls; the former is limited by the access of air and light of the divided spaces, and the latter is limited by the structural redundancy of the construction. In general, buildings with more open in plan and less specific in section are more flexible to change than vice versa.

There are three main types of architecture: Open spaces, closed spaces, and sectionally specific space. Expansive open architecture, such as factories, supermarkets, convention centers and gymnasiums, can interchange between these functions with relative ease without structural changes. The important determinant of change is fire safety concerns, for factories and gymnasiums have two drastically different requirements in this matter, and it is easier to transform from a higher fire-safety grade to a lower one. In addition to good fire-safety grading, many factories buildings are also structurally resilient, considering the weight of certain large equipment, and are suitable for large open office implementations.

Closed spaces with defined rooms, such as hotels, or apartment, and sometimes offices, are also interchangeable between each other. We usually design closed spaces for the long term occupation of humans, thus such spaces generally have a similar level of fire grading. Enclosed spaces with separate access could be divided into different units, or could be joined together to form combined units.

Sectionally specific spaces such as auditoriums, swimming pools, and concrete silos are the least flexible architectonic typologies due to their singularity of use. Churches may come under different faith or organization, but it remains a church. The sectional specific buildings are the most exciting for architects to design, and are also the most difficult ones to alter. However, certain sectional specific spaces provide surprising capacity for new innovations. The Michigan Theater in Detroit, once a grand 4000 seat theater, now performs as a most peculiar parking lot with a stunning barrel vault ceiling and magnificent molding. Spanish architect Ricardo Bofill lives and works in a collective of cement silos, La Fabrica, which is also an adaptive reuse work by the designer. Yet this example is rare for the typology, because silo projects are expensive and less profitable than erecting a new building. Both examples show that the complexity of function moves downward in new renditions. Making the spaces more specific in particular dimensions makes the buildings more singular in use, but having a rhythm in the spatial organization makes the architecture more pliant to change.

Rectangular Tian-jings compounds could break down from a larger household into separate individual homes due to the modular set up of smaller courtyards. Linear Tian-jings compounds could sustain both residential and institutional use with its original spatial and infrastructural efficiency. Both kinds of Tian-jing courtyards contain a combination of open, closed and sectionally specific spaces. Neither of the inidividual type represents the entirety of the architecture, but the agglomeration of all the individual spaces makes the larger compound a unique architectonic type. Each module of courtyard contains a multitude of spatial types, the open spaces provide room for modification, and the closed space limit the disturbance to other modules, and the open roof section provides environmental access and climate comfort. None of the spaces are strictly defined for residential, commercial or industrial use; thus, it is a possibility for them to contain any or all of these functions. Each courtyard may produce a unique approach for survival, and the totality of the individual endeavors can create a vibrant community. Therefore, the take away from the Tian-jing compounds is to provide an underlaying infrastructure of human scale, and apply architectonic modules containing a variety of spatial types. By providing a diverse array of spaces regularly, the

architecture allows a multiplicity of functions; the overall architecture becomes a complex ecosystem flexible to upward and downward flux, and emerges as a sustainable system ready for new challenges.

8. On change during the interstice of permanence

What is permanence or monumentality of architecture? Whether the building carries common values across the ages, or whether the container has flexibility to compress or room to stretch for different cultural or societal ideas? Pure monuments, such as the Roman Forum or the Holocaust memorial of Berlin, are spatial voids, or anti-architecture. These buildings are protected or built to fulfill the psychological needs or self-actualization of full-bellied people in times of peace. To the greater population, architecture is first and foremost a basic shelter and a roof over the head. The Teatro di Marcello, an ancient open-air theater for less than four hundred years, redeveloped into a residential complex after the fall of Rome, and continued to serve as apartments for more than fifteen hundred years. Architecture to human is comparable to shells to hermit crabs, the latter is the one which gives the former meaning; as the behavior of people morph according with advancement of technology and society, their container must either readapt or suffer obsolescence. Architecture is alive, because is a reflection of humanity, and when people change, architecture musts also change.

The zeitgeist of the time is change, everywhere from urbanization, industrialization, globalization, to climate change and global pandemic. Looking at a long shot through history, places, politics, and nations can all be ephemeral ideas. There is a famous Chinese saying: *Those long divided shall unite, those long united shall divide, such is the way of the universe*[6]; for one thing that never change is always change itself. After the great Romans fell to barbarianism, Europe fell into a dark age for a thousand years, yet their architecture remains standing today. China reigned as the greatest nation for thousands of years, yet wiped its cultural slate clean in a matter of ten years. My generation is standing in the interstice between forgetting and remembering, while the rush of entropic current vehemently tries to push us into the abyss of chaos. We need to decide whether to erase the past and begin again from the blanket state, or salvage the embodied wisdom of our predecessors.

6 Guanzhong Luo, Romance of the Three Kingdoms (Ming China: 1522), 1.

No one knows for sure how to prepare for the unrelenting vicissitudes of the future, but change will be certain. The only way for architectures to endure is to super glue itself to the drawing table in order to drift along the stream of time. Heritage architecture may only subsist as a palimpsest of its former self, whether it is the marble seats of the Colosseum becoming the stairs of Scalinata del'Ara Coeli, or the archways of the Teatro di Mercello carrying the renaissance apartments above, or the grey-bricks of the Zhu Family Compounds supporting the new rural houses, they all shall become the underlaying foundation for which the upper traces to draw upon. Rather than fighting against the rain, the Tian-jings accept the will of the heavens, for they are also wells which takes the forces of nature, circulate their powers, and use it to its advantage. Sustainable architecture of the future must first be well-built and long lasting, and we must also design with room to accommodate for unpreventable changes. Natural permanence is survival of the fittest; as architecture concede to the collective will of history, it shall cease to be an object of ancient monumentality and idealism, but a part of the tangible reality.

Reflections

In one of the undergrad lectures, a student voiced his concerns about taking more time to work out the narrative of the design before we start the drawings, but the professor replied that drawing is the one of the best process from which to learn design; you'll design as you draw. At the time I Interpreted this lesson as: the design dictates the narrative, and the architect has control over the environment.

I began my thesis on a personal story about a hundred and eight Tian-jings. I set out on this research journey to find and document evidences of a disappearing architectonic type; to draw out the unique spatial qualities of the Tian-jing, and to witness the physical applications of a lost culture of living.

The investigation exposed me to a mass of different Tian-jings compounds in varying conditions of preservation. I discovered that the success of an individual Tian-jing has effects on the longevity of the architecture, but are not be the determining factor of endurance for the overall complex. Rather, the most important lesson I learned throughout this journey is that Tian-jings – much like architecture – are not solidary objects within the complex enterprise of the environmental, societal and economic landscape. I began to question what allows certain compounds or particular Tian-jings to withstand the test of time and crisis. And what spatial or phenomenological qualities can we take from the Tian-jings to continue on in modern society.

I saw a strong pattern of those private buildings built to stand out in the environment tend to be in a worse state than those with a modest façade. This phenomenon repeatedly occurred with the internal sub-architectures of the Li Family Compound, and with the four different houses of Zhu Family Compound; the pattern held true on the macro scale with the unobtrusive settlement of Zhang Guying Village, and the unassuming positioning of Yinjiatang. As I walked through decay and prosperity, I began to understand the traditional Chinese wisdom of restrain and inconspicuousness, and the idiom "*still water runs long*."

Many of the Tian-jing compounds begun with a simple spatial organization, some grew in sequence upon the original planning logic, but many became filled with unplanned structures. My first hand experiences

allowed me to see architecture in a new light: instead of a singular structure stealing the spotlight, groups of buildings interact and blend together, creating an expansive tapestry weaving with knits and holes. Moreover, I learned to not look at architecture not as the objects in space, but as a carving of solids and voids in plan and section. The spaces between the individual buildings, and the larger environment define the quality of the architecture as much as its construction or design. Architecture is not an object but a piece of nature; it is an institution of trees and clearings within a larger matrix of forests. Instead of being the conductor of an orchestra of trades, the architect is a sculptor that must work within an environment of embodied wisdom that pre-exist him or her.

After reliving the experiences through my journal reflections, I began to see the living model of the undergrad lesson. These Tian-jing compounds provide an urban basis that allow buildings to be built upon each other as of layers of trace upon existing drawings. Sometimes with erasure or overlay, but always around and with the Tian-jing openings, like the blank spaces left on the paper. The architecture is a continuous living organism that designs as it draws upon itself.

Although the perfection of the individual Tian-jing may not determine the overall survival of a compound, the successful interlocking of an organization of Tian-jings together greatly heighten the chances for an enduring building collection. The Tian-jings itself is an introspective architectural device, but the space it creates allows one to both look above to the sky and look below to the water that flow through the earth. The space allows air to breathe through a large body; it is a place to convene between the busy goings of life and take a moment of reposure within the relentless passage of time. The architecture may not be common anymore, but traces of the old buildings has combined with the water that ran through the Tian-jings, into the sinks, into the fields and the rice that had become the flesh and blood of my ancestors, and me.

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