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The Weiwu at Dafuzhen. Unseen Details of Chinese Vernacular

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Two main types of residential architecture have dominated the architecture in the Fujian region in China. Known as tulou and weiwu, they have been developed in parallel. Both are designed for communal living, but are distinct from each other in terms of setting, layout, form and size. A good deal is known about tulou which has been inscribed as UNESCO World Heritage in 2008, but existing scholarship on weiwu is lacking.

The weiwu at Dafuzhen in central Fujian is of particular interest because of its architectural and planning sophistication and its commoners status. It is the Family Xiao’s estate built during 1870 to 1885. Our tasks were: first, to survey in situ each building part of the complex in the current situation with attention to details; second, to portray what was hidden from view using masterly "x-ray" eyes; third, to convey the information in measured drawings at technological and design levels. Our work is graphic and analytical in nature, ranged within a series of research questions: What was the planning made to suit the hillside setting? What was the architectural arrangement made to accommodate the community living? To what extent do water supply and drainage design serve as a planning strategy? This study suggests that water management was a key issue which was not a topic of great interest in traditional scholarship.

The book offers students and professionals an expert introduction to Chinese vernacular that has been termed the essence of architecture, with the Dafuzhen weiwu as a case study. It describes characters and structures, discusses functions and rationales, and investigates methods and techniques at design and construction levels.

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Even though I have been interested in vernacular architecture for a long time, I only started to work on this book in July 2014. This research was triggered by two events: first, a weiwu at Datuzhen (1870) caught my attention in early January 2012 during a field trip in Fujian with Yuyu Chang who was a visiting scholar at our university; and second, the university requested that the relationship between the host and the guest should be a research partnership.

This book is the result of our joint-teaching and research project. The rich and diverse vernacular architecture of China has provoked admiration, but it is seldom analysed as a key to our understanding of Chinese architecture. There were three principles when I designed the project: it must be a detailed case study; a documentation in graphic form with notes adhere to; and the architecture must be understood in planning contexts.

The study of this particular case has raised numerous questions among which is that its design is unknown. A step-by-step investigation of Datuzhen's various features has provided a great deal of information. This book presents the weiwu in a tectonic and technical sphere. Our study on building and setting has led to an understanding of the reasons for architectural forms and planning.

This book consists of three parts. Part I puts Datuzhen in a context. Part II deals with Datuzhen from two perspectives: planning and architecture. Part III concerns details at design level. As demonstrated in this study, first, water management played an important role in overall design and planning; second, the weiwu was closely related to a group of Chinese architecture typologically.

I am grateful to He Jingping of the Fujian Provincial Administration of Cultural Heritage, Liang Wantin and Huang Chunlin of the Youxi Museum for their support and the Datuzhen residents for their cooperation. I would like to thank the third-year architectural students from Zhejiang University, who recorded the Datuzhen in measured drawings. Gunnar Almevik of the University of Gothenburg, Sweden, and Ross Berryman of the University of Melbourne, who participated in our joint-teaching program in Fujian, I thank them for allowing me to use some of their photographs. I thank also Xuxuan Sun for assisting me to edit the measured drawings for publication.

Qinghua Guo, February 2016

Qinghua Guo is professor of Asian Architecture and Planning at the University of Melbourne. She initiated the project and carried out this research book. Yuyu Chang is associate professor in the Architecture Faculty of Zhejiang University of Science and Technology in Hangzhou, who coordinated with the locals and supervised the recording of the Datuzhen in measured drawings.
Weiwu in a context

The discovery of Tanshishan site near Fuzhou, the provincial capital of Fujian, reveals a settlement where semi-underground circular buildings belonging to the late Neolithic and Bronze Age were found. While the excavated architectural remains from the Qin dynasty (221–206 BC) down to the Ming dynasty (1368–1644) in the region are limited and the architectural history of the region remains un-reconstructed, there are many buildings survived from the Ming-Qing period (Qing 1644–1911).

In Fujian, there are mountains and valleys covered with dense forests and watercourses. The topography of Fujian is divided by the mountain chains and the river valleys into five regions: north, south, east, west and middle. This may have been a crucial factor in stimulating cultural regionalism. Linguistically, Fujian’s inhabitants speak five dialects as they entered Fujian from different localities, in the process of migration from the distant past to the Qing dynasty. Architecturally, Fujian’s built environment is diverse, as the communities were independent, and isolated enough for security. The formidable mountains, various dialects and traditional customs helped to maintain the strong architectural cultures inherited from their respective ancestors.

Fujian has a warm and humid subtropical monsoon climate – hot in summer with abundant rainfall and cool in winter. Temperatures average 20°C in summer and 12°C in winter. This helps explain why ventilation and drainage are the key in architectural design and settlement planning.

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The term »weiwu«, meaning »enclosed house«, is used by modern scholars to describe a type of enclosed compounds consisting of timber-framed, single-storey buildings. The weiwu at Dafuzhen is a characteristic example. In this study, we are primarily concerned with Dafuzhen weiwu, supplemented by other weiwu in the region, which are similar or relevant. Where possible the design method and craftsmanship used in weiwu are sourced locally in Fujian.

The other weiwu referred to in this study are Xiao’s old estate, Shujing, Guangyu, Sibao and Zhengshi.
Weiwu at Dafuzhen

Located at Pingzhai belonging to the Youxi county in central Fujian, Dafuzhen Weiwu was the Family Xiao’s estate built by four brothers over ten years, completed in 1885.

In Southern China, many villages are called zhen, meaning gully. The term zhen may be modified by an adjective to indicate its particular identity, for example, Shenzhen (a city next to Hong Kong). Da means big (da) belly (fu) to symbolise fertility. A few years ago, fu was replaced by its homonym which means happiness.

The Dafuzhen gully is a series of man-made canals designed to supply and remove surface water from a hilly area down to the settlement and further to the agricultural land.

The Dafuzhen weiwu has been owned by the Xiao family for many generations. Over 130 years it has undergone repairs while retaining its original form intact. In 2012, decayed roof timbers and missing tiles were replaced. In 2013, Dafuzhen was listed as a provincial heritage by the Fujian government.

A brief account of the family history is given below, based on sources provided by the local heritage office and supplemented by our interview.

Dafuzhen was built in 1870 by four brothers, the third generation of the Xiao settled in Youxi. The Xiao was a farming family, who had engaged in the business of timber trading. The grandfather, Xiao Hongwu, the ninth generation of the Xiao clan in Meixian (Youxi upstream) moved to this area and built a weiwu which still exists. The father, Xiao Shikuang had five consorts and each gave birth to a son. The eldest son did not join his brothers in building Dafuzhen. The relationship between them and the location of the eldest brother’s house are not clear. For convenience, the four brothers are called 1 to 4 in this book. The social status of the Xiao was wealthy commoners, and the grade of their wealthy was modest. Dafuzhen is representative of traditional weiwu.

6. Dafuzhen is c. 300 m to Youxi Brook and 100 m to the old estate.
7. A raised pathway among the rice paddies leads to Dafuzhen at the foot of distant mountains.
8. An aerial shot of the Pingzai area in 2014 gives an idea of the environment. In the mid-ground is Dafuzhen, looking south.
9. The line of the Xiao family.
10. Xiao’s old estate on a hill, completed in 1843, partially hidden from view by banana trees.
12. Structure of Xiao’s old weiwu: a post-and-tie framework with bamboo-and-daub infill, and a raised wooden floor. Posts are slender, varying in height. Between every two posts there is a strut. All vertical members are interlocked by tie-beams, and each member supports a purlin, upon which rafters rest directly.
Research methods and objectives

In China, if a date has to be put on the appearance of a modern scholarship on vernacular architecture it would be 1957. That year saw the publication of a book, *A Brief Introduction of Chinese Dwellings* by Liu Dunzhen. Since then, scholars have studied vernacular architecture with a number of objectives. The inhabited space and its daily use have been studied for social, cultural and ethnic information; the structures and forms have been documented for data acquisition thus architectural historiography.

This book is a case study about the Dafuzhen weiwu for two reasons: its architectural and planning sophistication as is immediately evident to us, and its commoners status. Our tasks are: first, to survey in situ each building part of the complex in the current situation with attention to details; second, to portray what are hidden from view with masterly «x-ray» eyes; third, to convey the information in measured drawings at technological and design levels.

Our work is graphic and analytical in nature, ranged within a series of research questions:

What is the weiwu typologically and structurally?

What was the planning made to suit the hillside Dafuzhen residents and their lifestyle

The residents are the descendants of the four brothers. At its height, there were 36 families, about 168 people, of the Xiao clan at Dafuzhen. In the 1930s, the compound was used as a commune kitchen and village storage. In the late 1960s–1970s, Dafuzhen functioned as an evening school or a meeting place for the community. In the 1980s, the Xiao people returned to Dafuzhen. From the 1990s onwards, people moved out to new buildings. The population has decreased greatly since then, to about 25 inhabitants today.

16. The residents are intensive agriculturists.
17. Dafuzhen Headman in front of the estate. The frontage is finished with painting and writing survived from different periods of time.
18. Sister-in-law of the headman drying homemade noodles on a bamboo panel.

19. After two-year preparations, we returned to Dafuzhen in 2014 to carry out a research project with a group of students to document the complex inside and out, which forms the main body of this book.
20. Chinese has a textual tradition recording history. Xiao is a literate family, but after the wars, the family-books, if there were any that survived, have been lost since the cultural revolution (1966–1976). We use a variety of non-textual methods and sources, including on-site conversation with locals.

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This book presents the physical structures of Dafuzhen with descriptive analysis in graphic form. The study interprets the architecture and planning based in the conjunctive approach. The objective of this study is to show not only its “as-built” condition, but also how to build. Decoration is not discussed in the book, but was touched on in the scope of the investigation.
Dafuzhen consists of five parts, a common area, living quarters, a private school, workshop and watchtowers.

A: common area with a central entrance (B, C, D & H: living quarters, each one with an entry, except H);
B: the elder brother’s to the right of A facing south;
C: the second brother’s to the left (East);
D: the third brother’s to the right beside B;
H: the youngest brother’s to the right adjacent to D;
E, F: auxiliary buildings, privies next to F;
I: belonging to a later stage in the development, by which time privies were filled in, resulting in the asymmetrical layout of the complex today. The encircled walls contain small exits on both sides, i.e., east and west.
K: watchtower. There were three, and all were demolished in the late 1950s. Two were rebuilt in the 1990s (K1 and K2);
G & J: private (or family) school;
L: workshop (later used as a stable for livestock).

Dafuzhen is now punctuated by four modern buildings built prior to 2010 within or immediately next to it.

1. Dafuzhen plan.
2. In front of the common area of zone A, there is an open ground of a rectangular and a half circular in plan. The rectangular space is a »lobby« at the main entrance to the compound, and the half circular was originally a pond formed due to digging out clay for building construction.
3. Open and shared spaces.
Dafuzhen is a formal compact compound on a rural hillside setting. Its common area is positioned in the centre with longhouses on both sides. Two building types in terms of planning are identified: courtyard and longhouse. The two are carefully laid out in proportion with each other. There is a visual rhythm created by the longhouses repeated regularly and symmetrically.

The length of longhouses is largely 3 bays, a few 4 and 2 bays, and one 5 bays. All are 2 bays in width. The 3-bay seems to be a basic unit in planning. We understand that a defined unit of measurement was employed in building and planning, thus proportions were determined.

Longhouses
- 3 x 2 bay
- 4 x 2 bay
- 5 x 2 bay
- 2 x 2 bay

Courtyard housing
- 5 x 2 bay
- 5 x 1 bay

Site and planning

Dafuzhen is 5974 sq. m in size, and the building area is 3600 sq. m (N-S 68 m, E-W 114 m). The site flows up the slopes via terraces upon which buildings are erected. The terraced area (excluding the school) stepped in four levels is N-S 36.8 m in length. The level difference between front and rear is 3.4 m, having an average grade of 5.3 percent. Controlling water is essential to life and crops. Water flows to the site through eight canals, each 2.8 m wide and 0.8 m deep in average. The canals are stepped and sloped, carrying water flowing at a certain rate and preventing washout after excessive rainfall.