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Village prototypes: a survival strategy for Chinese minority rural villages

Rural Chinese villages are disappearing at an alarming rate. Unprecedented urban growth either has or is in the process of decimating the physical and cultural identity of the village. This paper explores an alternative adaptive strategy for the Dong Minority rural villages of Southern China. Through the implementation of various forms of architectural prototypes, an operational tool to interrogate the village, local crafts and traditional customs are transformed through design propositions. Dong's inherently social and spatial structures become agents of change, assisting the prototype to calibrate an incremental modernisation approach; a paradigm for the community to realise that coexistence with the times doesn't necessarily equate with the erosion of heritage.

Introduction

'In the last 20 years, since 1990, 90% of the heritage of Chinese cities has been destroyed in the name of modernization, now we start destroying our countryside.'¹ This is how Wang Shu, the 2012 Chinese Pritzker prize winner, opened his 2016 Royal Academy annual lecture in London. According to Wang, the countryside is at the foundation of Chinese culture and if we don't act quickly, there is a great danger that in the next 10 years most of China's rural heritage will disappear. The predicament of the village and its looming demise associated with the ever-expanding city is not a new phenomenon. In his 1946 text *Manière de penser l'urbanisme*,² Le Corbusier anticipated that with incremental urban growth the traditional village had no chance of survival: 'To be blunt when in contact with large cities, the village loses its inherent balance and becomes abandoned'.³

This paper starts from these two premises, vis-à-vis disappearing rural heritage and abandoned villages to explore the status and future of Dong villages in China, a minority ethnic group within a majority Han culture. Their inherent social and spatial structures are instrumental agents that animate social life, and if adapted, can become assets that allow Dong culture to modernise rather than simply be replaced and forgotten.

Dong villages, like many other rural communities in China, are slowly suffocating from an exodus of people. Entire communities escape to urban centres in search of new opportunities leaving behind carcass villages that the authorities desperately try to resuscitate through ill-conceived, quick-fix solutions.⁴

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Figure 1.
Gaobu village along the Pingtan River in Tongdao County, Hunan Province, China. Photographs by the author.

Through the implementation of various forms of architectural prototypes, this research proposes alternative ways of learning from Dong systems. The study aims to present a new adaptive strategy that reinterprets traditions and allows a calibration process to begin. It is the thesis of this paper that rural heritage and customs can coexist with modernity but have to undergo a process of metamorphosis. Over a period of two years, since 2015, the authors of this paper have collaborated on a series of projects, workshops and architectural experiments in the Dong village of Gaobu, Hunan Province. The findings presented here are the fruit of this intense collaboration (Fig. 1).

China's rural villages in context

The issue of China's rural community cannot be disassociated from China's rapid urbanisation: the two issues are inter-dependent. In the quest for rapid modernisation, rural China has become the supplier, in the form of affordable labour, to the 'Concrete Revolution'⁵ that has led to the startling erosion of its rural villages.

Unprecedented urban growth, an ideology of urbanisation, either has, or is in the process of, decimating the physical and cultural identity of the Chinese village. Since the late 1970s following Deng Xiaoping's economic reforms, China has experienced an unparalleled exodus from the countryside to the city. As a consequence of this mass migration, villages are rapidly disappearing. The statistics, according to China's Ministry of Civil Affairs,⁶ are unprecedented: in 2002 there were 3.6 million active villages in China, while a decade later the number had reduced to 2.7 million. In an effort to transit its economy to an increasingly domestic market, it is estimated that China is losing 300 villages a day, as a result of an exodus of rural residents from villages to the city.

According to Martin King Whyte, this process has led to the creation of a 'one country, two societies' system.⁷ Whyte explains that the paradoxes of the Rural-

Urban inequalities in contemporary China are linked to profound changes imposed after the communist revolution, creating a population that was effectively bound to the land. To this day, Whyte argues, China is still struggling with the repercussions of this legacy, where the aspects of inequality beyond the frequently cited income disparity, relate to access to education and medical care, the digital divide, housing quality and location. All factors that result in sentiments of discrimination, particularly towards rural residents and urban migrants.⁸

Within this dominant ideology of urbanisation, the question of how rural villages become socially and ecologically relevant in a manner that avoids commercialisation is being addressed by numerous professionals and academics. At the forefront of this research, as quoted at the start of this paper, is the work of the Chinese architect and academic Wang Shu, who over the course of his career has been engaged in translating rural Chinese architecture into a new language in tune with contemporary living. Wang's philosophy relies on the notion of coexistence between heritage and modernity by carefully studying traditional craftsmanship, what he refers to as the 'Craft System'.⁹ He seeks to find a wiser way of construction that does not simply rely on concrete and steel, but engages with the rich tradition of Chinese craftsmanship that has evolved over centuries.

Dong culture

The Dong ethnic minority people are one of China's 56 ethnic groups who live in the region delimited by southwest Hunan, southeast Guizhou and north Guangxi. With a population of almost 3 million and a long history of more than 1000 years dating back to the Tang Dynasty, the Dong communities are today deeply affected by the phenomenon of 'village hollowing'.¹⁰ This unprecedented migration of rural populations to expanding urban areas has resulted in almost vacant villages inhabited by struggling communities consisting of mostly the elderly and children.

This paper centres on a series of villages along the Pingtan River (坪坦河) in Tongdao County, Hunan Province; focusing on Gaobu (高步), a village of approximately 2500 inhabitants, as a pilot village to test a possible regeneration strategy. To understand Dong culture, it is essential to be acquainted with their environment. The Dong live in a mountainous area in south China that is renowned for its landscape of rice terraces, bamboo forests, and tea plantations, and that remains predominantly intact today. Their architecture is intrinsically connected with the land and topography, generating a harmonious relationship between nature and artificial structures. Their architectural timber heritage is one of the last remnants of an ancient culture in China that is still alive. A 2013 UNESCO Report granting a series of Dong villages along the Pintang river tentative recognition of World Heritage status, pending final approval, states:

Dong Villages are a perfect integration of humanity and nature, and they reflect the Dong peoples' principle of adapting themselves to nature for survival and development. The Dong Villages are not only an organically evolving landscape but also a continuing landscape.¹¹

The role of the family unit and social rituals are fundamental to how the Dong community adapts to nature. Dong society is organised around the concept of Kuan (款), which is a form of hierarchical social organisation, with a common ancestor or elder at its core; Kuan society links many households that are blood relatives to form a larger family unit. Each family unit constructs a 'drum tower' that is regarded as a symbol of the family's wealth and status, and they are considered the centre of Dong's cultural and spiritual life.

Dong culture is not accustomed to their villages being designed. For centuries, in the absence of written histories, 'material culture has served as a greater mnemonic role for them in carrying the order of things at every level'.¹² Villages developed according to geographic and spiritual readings of the topography derived from ancient Daoist philosophy. Typically, a *feng shui* master would inspect the local landscape to select a land that would guarantee good fortune: dwelling, cultivation, and most importantly, a graveyard site where ancestors could sleep soundly and not return to haunt their descendants. Every Dong building is associated with a ritual, from the private domestic dwelling to the public political drum tower, the identity of every space is linked to a social ceremony such as birth, marriage, and death. Within the hierarchical social structure of the village, the carpenter plays an important community role, holding the responsibility to erect the timber frame of all structures (Fig. 2).

It is our view that Dong architecture continually renews and reinvents myths and stories that are at the core of their identity. Central to all social gathering spaces within Dong settlements is the 'Wind and Rain' bridge, a form of inhabited infrastructure that connects villagers directly with their primary source of life and also the village's *raison d'être*, the river. As well as being a true feat of timber engineering, the bridge is empowered with special spiritual powers that protect the village and allow a complex social programme to function.

Xing Ruan's *Allegorical Architecture*¹³ analyses the workings of Dong architecture from a phenomenological standpoint, entering into the hermeneutics of how Dong people inhabit architectural form. His investigation unravels the deep relationship that exists between the built and natural environment, developing a semiotic alternative understating related to symbolic and practical readings, explaining that

It is architecture that 'speaks' to them, and it is an architecture that is primarily for its inhabitants. The built world indeed is the extension of their body and mind; their experience with architecture is figurative, and their understanding of the built world is allegorical.¹⁴

Men and women have different responsibilities within Dong Society; to this effect, the bridge is designed with segregated areas for both sexes. Women are allowed to cross the bridge but not rest in the main section, an area reserved for men. A separate annexe, an articulated tower structure, is typically added to house females. Each public space is crafted according to Dong's social hierarchies, where the articulated built form represents only the first level of understanding of a culturally layered space (Fig. 3).

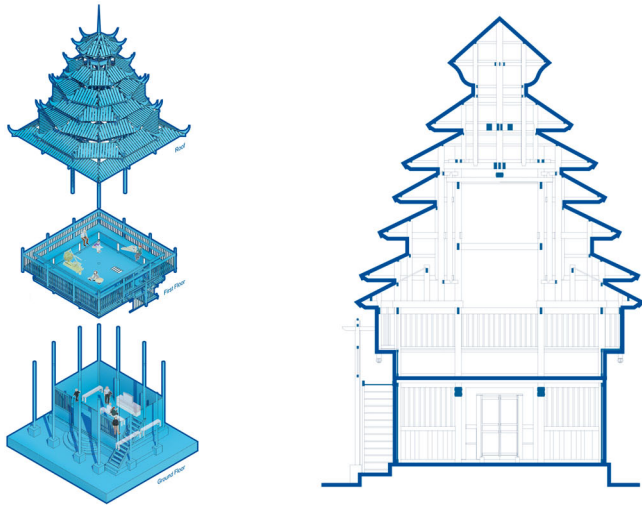


Figure 2.
Gaoshang drum tower, Gaobu
village. Drawings and photograph
by the author.

Klaus Zwerger's *Vanishing Tradition*¹⁵ outlines the historical development of Dong architectural techniques, recording how these complex timber structures came into existence, before they most likely disappear. Zwerger offers a unique insight into how technical and symbolic considerations come together in the formation of a building. Every Dong typology follows a set of unwritten rules which are interpreted by the carpenter and adapted according to the site. This process establishes a sort of architectural 'genetic code' where no two buildings look the same, yet belong to a common language.

For example, Dong residential buildings, 'Ganlan', usually have three bays and are mostly three storeys high. The bottom section is defined by the pillars on which the house is built. The floor above is the living space, while the top floor is the attic and the children's bedroom. The elevated timber frame structure offers flexibility to react to steep topographical conditions, and at the same time, protects against insects and animals, flooding and dampness. Zwerger explains, however, that most importantly, 'they fundamentally allow adequate ventilation, a vital factor given the level of heat and humidity'.¹⁶

At first, it appears counterintuitive that the majority of Dong houses are built along steep topographical contours; however, as is always the case with Dong architecture, there exists a very practical explanation. Every tiny plot of flat land is dedicated to agricultural cultivation. The dimensions of the standard house vary between two and five bays. Each bay is approximately 3.5 m wide, resulting in houses with floor plates between 50 and 120 m². The house is conceived as an adaptive system, which can expand and contract. The ground floor houses animals, on the first floor is the living area, with the kitchen, a veranda, and often a small altar located adjacent to the fireplace, and the upper storeys accommodate bedrooms and a storage area. Finally, all forms of Dong architecture, whether public or private, are built in timber following the 'Chuangdou' (穿斗) traditional timber frame system.¹⁷



Figure 3.
Wind and Rain bridge, Gaobu
village. Photographs by the author.

Architectural prototypes

The architectural prototype is seen as a vessel of change, able to instigate and challenge a transformation that does not start from a clean slate scenario, nor does it relate to nostalgic superficial surface readings of Dong culture, but alternatively seeks solutions that are rooted in an evolution process. In the professional and academic realm the architectural prototype has of late become discouragingly associated solely with digital fabrication, with multiple software programmes computing data to produce iterative designs. However, in our discourse, the notion relates to organisational systems as conceived by the Dutch architect and theoretician Raoul Bunschoten. In his book *Urban Flotsam: Stirring the City*,¹⁸ the prototype is conceived as an architectural organism: an object, event, or regulation that reacts to a given context, relying importantly on a feedback mechanism to evolve into a given proposal. As adaptive structures, prototypes respond to specific conditions, using materials that may not necessarily be meant for the final production or complete design. The role of the prototype is to be unique and test original ideas; a design fragment which challenges preconceived thinking and leads to a radical change of position.

Contrary to conventional architecture, the prototype relates to temporary and adaptive design solutions. In this respect, they are similar to the idea of *Magnet*¹⁹ invented by the British architect Cedric Price, in that Price's theoretical position relies on magnets being facilities with inherent possibilities of change, growth, and adaptability compared to buildings. Price argued that architects often see buildings as a cure for social problems, a role he believed they are singularly ill-suited to, as they are 'too slow, too solid, too late'.²⁰ The architectural prototype, as a context-sensitive design, serves as a working model for implementation in numerous analogous situations. The prototype as a paradigm encourages a rethinking of existing ecosystems in order to incorporate novel expressions as well as new performances.



Adaptive theory

Rural China lacks a sense of time; hesitate and you risk missing a chance for potential success. This pervasive sense of panic leads to the inability to think beyond rapid financial gain, instigating plans and visions that make little sense and have dangerous repercussions. An example of this ad hoc thinking in relation to Dong culture can be seen in the regional town of Tongdao (通道县), a Dong administrative centre of approximately 250,000 inhabitants, located in the south of Hunan Province, that in recent years has undergone a form of 'Dongification'.²¹ In Tongdao, Dong culture has become a commodity, a brand that the authorities explicitly take advantage of by creating fake traditional stage sets. Authentic timber structures, that for centuries have embodied the Dong 'DNA', are stripped of their structural properties and metamorphosed into mere clip-on disguise (Fig. 4).

Adaptive timber philosophy

Although this practice of contamination is expanding, it is a relatively new phenomenon very much at odds with Dong heritage. Dong architecture relies on a loadbearing timber framework,²² a system that has allowed buildings to adapt to changing environments, territories, and even political instability for centuries. Their timber constructions allow large spans that in turn permit flexible use, as well as ensuring elasticity within the structure (a key antiseismic factor) and can be erected quickly: all characteristics that produce an adaptive building philosophy.

Versatility of material and associated systems inherent in Dong architecture hold the potential to connect tradition with modernity. Dong's geographical location²³ gives rise to an anomalous situation where all buildings — both public and domestic — are based on a timber skeleton construction. This struc-

Figure 4.
Examples of 'Dongification', two
new bridges in Tongdao County.
Photographs by the author.

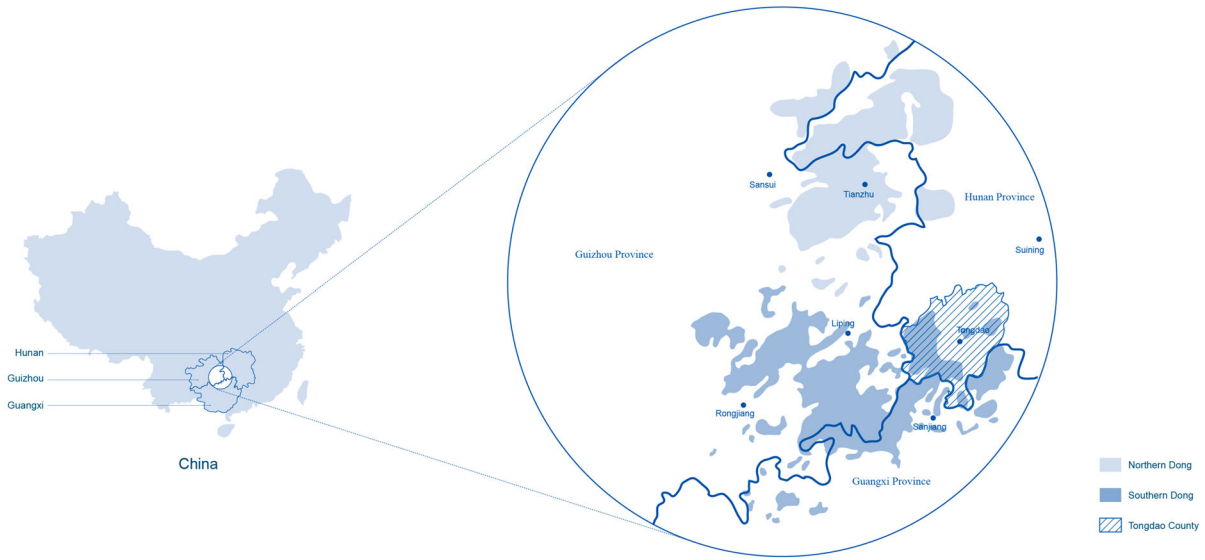


Figure 5.
Map of Dong settlements: Guangxi,
Guizhou and Hunan Provinces.
Drawings by the author.

tural system, where the walls become non-load bearing elements, is in many ways a precursor to the Maison Domino system invented by Le Corbusier in 1914 which allowed the façade of a building to be free from any structural responsibility (Fig. 5).

Most buildings can adapt, but few buildings are designed to be adaptive.²⁴ The possibility to design highly flexible interiors was a modernist credo concerned with offering inhabitants flexible and interactive spaces rather than static rooms. According to Steward Brand, who stated in his book *How Buildings Learn*, architectural adaptability is connected to an evolutionary process, where buildings adapt to changing requirements.²⁵ Dong buildings allow most internal and external spaces to be reconfigured thanks to their timber component system. It is this responsive nature of their buildings that this paper wishes to pursue.

Adaptive prototypes

The prototype as a paradigm encourages a rethinking of existing ecosystems in order to produce and incorporate novel expressions. With reference to the Dong, prototypes become an operational tool to interrogate real problems, such as the eradication of their rich architectural timber heritage due to the seemingly unstoppable concrete colonisation of the rural Chinese village. The idea of working with prototypes as both interrogator and a social activator is not uncharted territory for the research team who, over the last two years, has initiated and carried out several prototype projects. As Bunschoten noted,

Prototypes are both machines and models, they connect processes and create pilot projects. They contain systems that create an output that changes an environ-

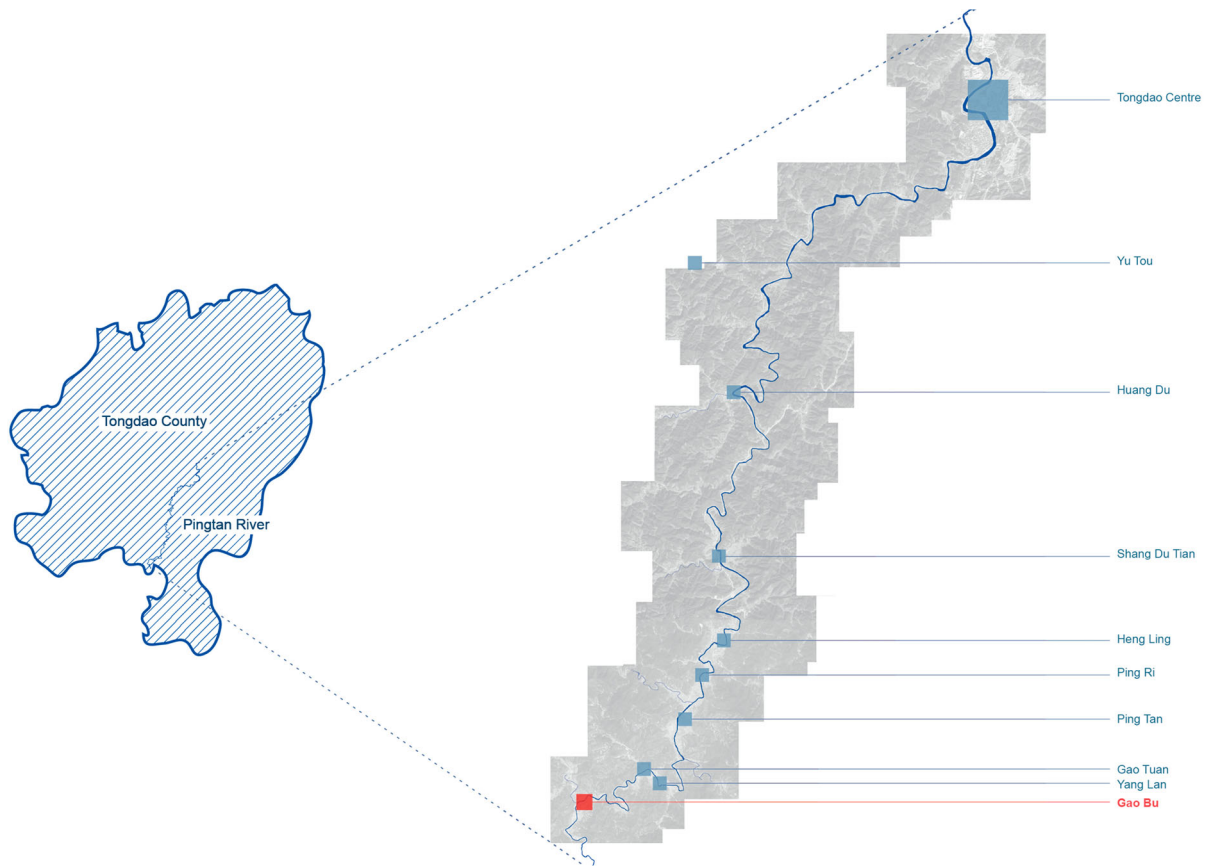


Figure 6.
Map of the nine Dong villages
along the Pingtang River. Drawings
by the author.

ment, and they enable us to study the effect of that output; they are engines of change as well as didactic tools about the benchmark of that change.²⁶

The notion of the prototype as a vehicle for gradual incremental modernisation originated from a pilot trip to the Pingtan valley the authors took in 2015. Witnessing how recent international attention from UNESCO²⁷ had negatively impacted six of the nine villages in terms of overcrowding, commercialisation, environmental pollution, and most importantly, loss of native customs, we set out a plan to work in one of the three unselected villages. The vision was to first research the village and later implement a series of projects that would set in motion a micro-adaptive master plan to counter the present local government strategy (Fig. 6).

Our idea was simple: local authorities wished to freeze the historical heritage of the village as a tourism asset, providing a new modern satellite village at the periphery as an alternative replacement. On the contrary, we maintained that the autonomous rural life and its associated social and agricultural values could be kept and mutated to integrate those of contemporary living. Over a two-year period, we conceived two forms of prototypes. The first would focus



Figure 7.
Gaobu Site Plan and villagers
performing a traditional dance.
Drawing and photograph by the
author.

on researching village life with architectural students from two universities²⁸ through a series of summer workshops, whilst the second example involved working directly with the local inhabitants to construct a multipurpose education centre for children.

Prototype A — workshops

Gaobu is a particular village amongst the Dong Minority villages as it is rich in historical heritage, yet due to its relative remoteness²⁹ has only moderately been affected by the advent of regional and national tourism (Fig. 7).

It is paramount to understand the Dong's culture and traditions before devising a modernisation strategy. Authentic rural life still prevails in Gaobu. Villagers are bound to their daily rituals associated with agriculture, remaining virtually autonomous within the ecological cycle that has been with them for centuries. Harvesting rice, working the land, tending the animals, looking after children, gambling and smoking are all sources of joy. In *The Kam People of China*, Geary et al. trace the history of the Dong community, critically explaining the meaning and hidden associations behind their agricultural life, and contextualising the importance of harvesting, food, family rituals, craft, the role of wood and their religious and spiritual beliefs that cannot be isolated and read separately.³⁰ It would be disingenuous to believe this is an ideal community within a bucolic setting. Serious problems prevail mostly related to dwindling demographic figures, a population consisting of mostly the elderly and children growing up without their parents.

The relative anonymity of Gaobu made it a perfect candidate for our study, as it is a village about to change but which has importantly retained a latent traditional culture. The process of establishing a relationship with the villagers and the village chiefs³¹ was not straightforward. It took many visits — a sign



Figure 8.
Students fabricating toys from
obsolete farming equipment —
Workshop 1, Gaubu 2016.
Photographs by the author.

that we were serious about our research — for the community to accept us. Once we broke the ice, we discussed the possibility of establishing an annual architectural summer workshop each year in July. With no local hotels or restaurants, this became a real community project, involving 10 families housing 40 students and a hard-working team supplying and cooking all our meals.

By organising our research around a series of workshops, students, teachers, and villagers were able to collaborate closely on specific tasks, generating a deeper understanding of the place. During the first workshop, held in July 2016, students were asked to identify and map existing spaces where social practices took place and to propose prototype designs for possible ways to reactivate these conditions. The adjustments were not necessarily a means to modernise or upgrade the spaces in question, they were conceived as a way of revealing alternative (spatial and programmatic) potentials.

Designing through mapping

Ten teams selected 10 specific conditions: Events, Furniture, Children, Water, River, In-Between, Sound, Abandonment, Food, and Waste. Each condition falls into two categories: 'Daily Life' and 'Communal Events'. Interpreting the village through these concrete approaches, allowed students to engage with the local community, aiding them in deciphering precise village issues and avoiding tireless speculation about the village as a whole that typically generates a sense of overwhelming detachment and platitude (Fig. 8).

Fragments of daily life

Deciphering observations was the first step in conceiving the prototype: the more forensic the mapping the more relevant the design. Teams started to examine first-hand evidence, digesting how their topic related to the metabolism of the village. The 'Furniture' team swiftly realised how integral their com-

ponents were to Dong's public space. One student insightfully observed that 'where there is furniture, there are people, where there are people there is life'. Dong furniture is never discarded but handed down from one generation to the next. Picking up on these adaptable characteristics, the team developed a prototype as a system: a kit of parts that could adapt to multiple conditions.

Due to limited resources, the village becomes the children's *de facto* playground. In particular, the river, which during the summer months transforms into a public swimming pool, is the source of endless joy. The 'Children' team developed a hybrid pontoon structure made from bamboo and recycled plastic bottles, as a game for the children to travel downstream and at the same time acting as an educational tool to experiment with the geography and physics of the river.

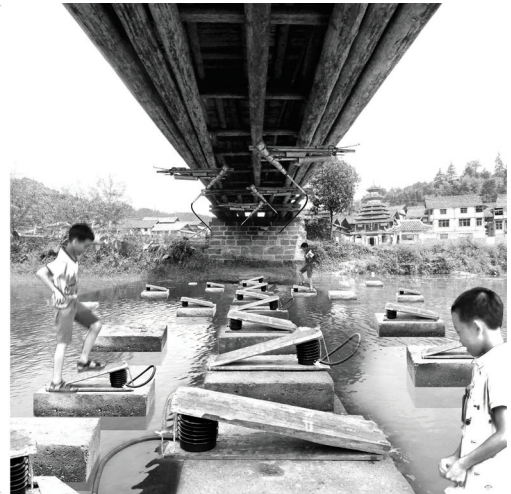
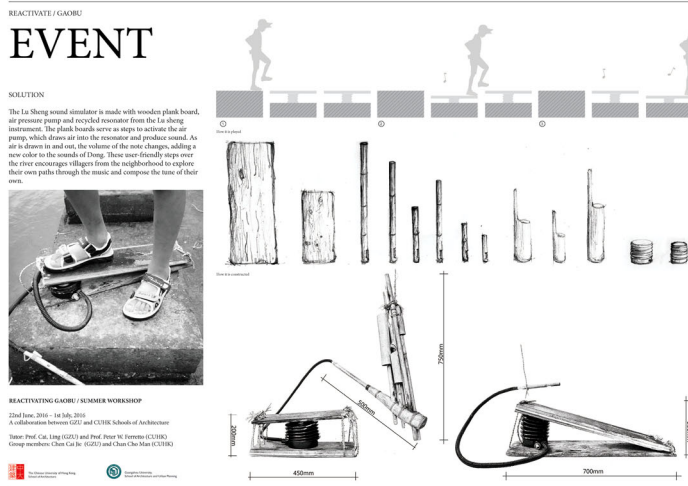
Two teams became intrigued with the notion of obsolescence. The village is littered with examples of discarded and neglected items: houses, animal barns, community centres, farm equipment, carpentry tools, etc. Items that once played a key role in supporting village life today lie idle. The 'Abandonment' team decided to map obsolete items and transform the objects into playful games for children. Working together with the old village folk, in the manner of Swiss artist Jean Tinguely, they transformed mundane machines into playful toys. Meanwhile, the 'Waste' team scrutinised how artificially produced materials such as plastic, chemical fertilisers, and concrete infiltrate the local ecosystem.

Participatory events

Most of the daily life of the village occurs in the public domain, around alleys and squares where people convene in order to work and talk. Festivals play an integral part of their social life, a means to both celebrate life as well as paying respect to their ancestors.

The 'Event' team examined the role of traditional music, in particular, the sounds generated by the *lusheng*, a traditional Dong musical instrument made from bamboo, which is played at key festivals. Although many instruments can still be found today, only a few elderly men of the village are able to play them. After researching how the instruments were made, following a process of cutting, curing, and assembling, the team developed a musical simulator, situated in a residual space below the Wind and Rain bridge, connected to a bellows mechanism that would play music when people walked over it.

Public spaces are never too large in Dong villages, ensuring the sound quality is always preserved. Every sound in Gaobu is vivid and distinct: from the crowing rooster at dawn to the female choir rehearsing at night, there is a natural reverberance about the village. By studying the various sounds produced, direct and indirect, and how they are reflected or absorbed by different surrounded materials, the 'Sound' team experimented with controlling/mutating such sounds. A series of hanging surfaces were designed and positioned in a way that best calibrated the sound. Through building the prototype, the team became aware that most dwellings are not insulated, which results in a lack of privacy and general disruption to domestic life (Fig. 9).



Timber probing

The second educational workshop, which took place in July 2017, set out to understand a different aspect of Gaobu’s habitat. The objectives centred on traditional timber craftsmanship, learning directly from local carpenters. Nine groups were assigned the task of identifying a residual public space within the village and to then propose a timber prototype that would trigger potential new life.

Each team was given the same amount of timber to work with: 1 m³ that came in the form of raw China fir logs.³² After an intense charrette, where students designed the prototype using physical and digital models, the schemes were presented to the three local carpenters to discuss their fabrication, cost, and details. Dong carpenters typically do not use drawings to build; their techniques are empirical and based on assimilated knowledge.³³ However, when assembling complex structures such as drum towers, they consult scaled timber models to aid the process.

The carpenters all felt at ease discussing the students’ designs over models and laptops. Perhaps surprisingly, it was the carpenters’ ability to read the digital model that allowed students to translate and adapt their designs according to types of possible connections, the strength of the timber, grain direction, and standard dimensions. Students quickly became familiar with the carpenters’ tools: axe, saw, chisel, and traditional measuring tools, which in turn led them to amend their prototypes according to given triangulations methods and traditional geometries.

We purchased 9 m³ of logs costing a total of 11,250 RMB.³⁴ This had to be cut into usable sizes, a process that required a large band saw. Rather than take the logs to the saw, in Gaobu the band saw comes to you. Mounted on the back of a DIY trailer, a petrol-fueled industrial band saw is driven to the specific site and set up for cutting to start. Our team of three carpenters each had a specific task and with the aid of some basic jigs, the logs were cut into lumber.

Figure 9. Design prototype for a lusheng musical installation below the Wind and Rain bridge. Photographs by the author.



Figure 10.
Timber prototype workshop —
Workshop 2, Gaobu 2017.
Photographs by the author.

Each prototype reacted to a specific site and was governed by a strong sense of scale: too large and the prototype might not be completed, too small and the desired impact might not be achieved. To avoid the prototypes all clustering in one location we subdivided the village into five sectors, coinciding with the structure of the village and the position of the respective drum towers, assigning a maximum of two teams per sector.

The prototype became a reactive design tool, first to gauge the existing character of the place and subsequently to unfold the potential of the material. Each design related to a public and social dimension of the site by revealing, linking, and awakening vestiges of the residual condition; hidden spaces developed into public platforms, avoided sites (smell, dark, and dangerous) were injected with new programmes, areas of intensive labour were supplied with playgrounds to allow the adults to supervise their children, topographical level changes were mitigated with artificial timber landscapes (Fig. 10).

Learning by making

Both workshops addressed the fundamental question, 'What is a Dong village today?'. Before speculating about what Dong villages will become in the future, or reminisce about what they once were in the past, we wish to investigate what they are here and now: as Ai Wei Wei wrote,

Most of my efforts go into forgetting what has already been said, and attempting to contribute to a new way of looking at a situation in everything I do. There can be no substitute for the 'here and now'. It is the most important element in every kind of art, architecture, and design.³⁵

The prototype is a method of research, a means of engaging, comprehending, and digesting knowledge; it is a practice of investigation that operates with the formed and is informed through proximity to the subject.

All the prototypes developed by the students operated on two levels simultaneously: inside the local culture (Emic) and outside it (Etic). In this respect, a



Figure 11.
Example of two timber prototypes
designs. Photographs by the
author.

prototype is a unique tool that allows the collection of insights that are dynamic, that change with time. By conducting the workshop on an annual basis, it is possible to observe and adjust proposals that change and are not based on static references. At the same time, the prototype is also a pedagogical exercise, a means to educate architectural students beyond technical and professional considerations, to confront them with the realities of rural life and also stimulate local carpenters who thrive on new challenges set by the students (Fig. 11).

Students who attend these workshops have grown up in urban centres; most of them have lived all their lives in either Hong Kong or Guangzhou, two of China's biggest metropolitan centres and many have probably never visited a rural village. In this context, the prototype is not helping the villagers, its value is turned inside out; now the prototype educates the student, helps them connect with social and ethical questions, topics that seem far removed from the current architectural curriculum.³⁶

Prototype B — a house for children

Over time, suspicions slowly evaporated and a bond of mutual respect started to emerge. Villagers frequently asked our opinions about how to improve their environment, and many vented their frustrations about the lack of help from the local authorities, till one day the local chief proposed we design a bigger prototype that could inject new life into Gaobu; they wished for an aspirational building as an antidote to their preservation predicament.

The villagers' frustrations related to a misconception of scale and programme that the authorities applied to their village in seeking to find a one-solution-fits-all approach, which avoided responding to the nuances and bespoke nature of Dong architecture. An example of this mindset is the ubiquitous cultural community centre the authorities have imposed on every village along the Ping



Figure 12.
Children library prototype design.
Images by the author.

Tau river. These two-storey concrete and brick buildings, clad in wood to appear vernacular, are far bigger in area than any other public building.³⁷ Hence, they quickly become non-places devoid of people and activity. Not only do these apathetic buildings go against basic materials and spatial habits of Dong living, they also challenge the existence of the real community centres, i.e. the drum towers.

Our first reaction to this problem was to combine the knowledge learnt during the workshop. Intuitively we knew the building had to be small and intimate, a product of micro-thinking rather than a macro-imposition; at the same time, it had to be made with local timber by local carpenters. Rather than a building for everyone, it must be specific, tailored to a particular audience and most importantly it should tell a new story with traditional means. Children encapsulated this vision, as their inquisitive nature and positive energy represent Gaobu's biggest asset towards a more sustainable future.

Most children are raised by their grandparents until the age of 10 when they are forced, due to lack of facilities, to leave and study in nearby towns. Educational facilities such as schools and libraries are poor, therefore our aim was to offer an educational incubator, a house for children to learn through playing.

Topography of stairs

The local chief quickly identified a potential site that had been long abandoned. Located on the bank of the river, the site's key feature was its steep topography, resulting in the plot being surrounded by multiple stairs each connecting different parts of the village. Our design incorporated the stairs into the building, creating a topography of stairs for the children to play inside. Having witnessed how stairs become a key architectural element in Dong daily life, a place where people usually congregate around and especially a place where children love to play, stairs became the generating idea of the prototype.

Inspired by *A Pattern Language*³⁸ the stairs become a stage for people to inhabit, rather than a mere circulation element: 'The stair is itself as a space, a volume, a part of the building and unless this space is made to live it will be a dead spot'. We opted to wrap the set of stairs around the perimeter of the plot, creating an inner 'helix' void space inside in the process. This internal space would become a room where people would engage in classes and public events while the stairs would act as both the reading area and the bookshelf. By activating the façade through stairs, the building becomes a dynamic vessel for villagers to interact with rather than static object building devoid of life.

The idea was that while children play, they can also stop and read books or listen to a story; rather than a chore, reading becomes fun. We introduced three functions in the form of separate rooms: a small children's theatre, reading rooms, and a mezzanine for studying. The whole building was to be made of timber, and the inner core was to be fabricated off-site while the main structure, the stairs, and the outer façade were made from local wood. The bookshelf would be an enclosed space, with glass panes and timber panels protecting the books from the elements.

Incubation period

From the moment we completed the design an incubation period started, during which we presented to the planning authorities and the heritage commissioner of Tongdau County, sought potential financial funding, and developed the detailed documentation. Finding the right person to review the project was not straightforward. First, there were questions whether the project constituted a building or could be classified as a temporary structure. Then, to our surprise, we found out that Tongdau County had commissioned Tsinghua University in Beijing to prepare a new heritage conservation masterplan for the whole Pingtan River valley, in an attempt to reapply to the World Heritage body UNESCO for listing. Hence our proposal had to be approved by them.

The evolving Kafkaesque journey finally resulted in the head of the Heritage Commission denying our approval. All parties involved — the village chief, the authorities, the party officials, and most importantly the villagers — all agreed that the project had to be built and a new site should be allocated. Hence on returning for the second annual architectural workshop in July 2017,³⁹ the Tongdau Planning Bureau proposed an alternative site adjacent to Gaobu's primary school in the heart of the village. For various reasons, this site fell under a separate planning jurisdiction and was situated outside the highly protected conservation area, offering greater chances of being realised. Finally, in March 2018, we received confirmation that work could begin. During the incubation period, funding was also secured by a private Hong Kong philanthropist who sponsored the project with a 300,000 RMB donation. Work was set to start in May 2018.

House for children

The second proposal retained the 'DNA' of the first project, vis-à-vis the stair landscape, but the design was adjusted to the new context. As the site is sur-

rounded by a dense cluster of traditional Dong houses, we opted to rotate the orientation of the plan by 90 degrees to allow maximum daylight penetration, meaning that the main façade would now face south, and frame a view to the playground and nearby sacred hill. The building follows the traditional 'Chaou Dou' post and beam frame system, with a ribbon staircase meandering between the posts creating an exciting parkour for the children (Fig. 12).

We named the project 'House for Children' to avoid predictable nomenclatures such as a 'library' and 'community space', as it was imperative for the design to stimulate a sense of wonder within the local youth. The functions of the house are to spread different forms of knowledge through play, incorporating facilities such as a library, local craft archive, exhibition gallery, and an environmental awareness centre where children can understand the value of their precious ecosystem. All the programmes are accommodated within a single open three-storey volume with a rear shelf-wall housing books and local artefacts. The ground level is dedicated to exhibitions and events, opening up towards the adjacent playground, while the upper levels house tables and computer areas. The building was built entirely by local craftsmen with locally sourced timber, via an iterative design process, by which we proposed a solution and the carpenter suggested a variant. Rather than a binary yes/no discussion, the system became a form of dialectics through models and mock-ups, which contributed to the final design.

Lastly, this final prototype has become a pilot project to demonstrate to the villagers that alternatives to the status quo do exist and they may not rely on invasive cultural surgery. Alternatives to concrete do exist and can be fine-tuned to perform to contemporary standards. Timber can be transformed through innovative design to form flexible solutions that harness local craftsmanship, and if coupled with relatively inexpensive modern timber technology, can become a new source of entrepreneurship. By proposing an alternative to ultimately accepting the youth exodus, it would introduce opportunities to establish new sources of income, such as carpentry and furniture workshops, and discourage people from leaving.

Conclusions

What is happening to Dong villages is by no means an isolated phenomenon in rural China. As Messmer and Chuang have written, 'Modernization is slowly and relentlessly encroaching into China's ancient cultural landscapes. It is like spreading a new carpet on an old wooden floor, even if the floor is worn and needs restoration'.⁴⁰ Sacred traditions and rituals that have lasted unaltered for centuries now face near certain extinction due to the lack of any coherent rural plan. Our conclusion to this investigation draws on four strands of contextualising the notion of rural transformation and the role of design evolution, investigated through a series of realised pilot projects.

Cultural heritage and the plight of minority villages in rural China

From a macro perspective, a phenomenon is developing regarding the cultural preservation of minority villages in China. Minority culture is becoming a com-

modity, a form of cultural entertainment, where local authorities, eager to join forces with tourism companies, exploit the cultural assets of different minorities.

What we have witnessed in Dong villages along the Pintang river, vis-à-vis the promotion indigenous festivals, traditional singing, and dancing performance, together with theme-park showcasing of vernacular buildings, is symptomatic of a mindset (profit-seeking rather than any real interest in local traditions and rural heritage) that is prevalent throughout China. In contrast to this widespread commercialisation, Gaobu has demonstrated a certain resilience — an independence rooted in the villager's daily routines — that is under threat today more than ever.

Anthology of rural episodes

Over the course of two years, our research set out to explore the reality of a rural Chinese minority village through a series of collaborations that considered multiple aspects of Dong society. From the outset, it was important that we did not fall into superficial assumptions based on remote readings and sweeping generalisations. It was imperative that we 'emplaced'⁴¹ ourselves within the local culture, not simply as observers, but as active participants.

Although the workshop as a methodology has associated flaws related to establishing artificial and potential forced connections between the researchers and the villagers, it did allow us to establish a system of exchange through practice. By working together on tangible projects, we were able to get closer to understanding how the villagers think, feel, and plan their life.

Having completed two workshops, where more than 100 students visited the village, we have built-up an anthology of rural episodes, a body of knowledge in the form of social and spatial incidents that we never presumed to gather at the outset. As Gaobu transforms it would not be an overstatement, given the recent government plans,⁴² to predict that in five years' time Gaobu will no longer operate as an agricultural village. This is where our episodes can become the catalyst to a new 'adaptive' direction, a vision that looks backwards to project forwards, that works on small-scale incremental interventions rather than grand impositions. In this manner, we believe our research will work as an antidote to the cultural taxidermy that is rapidly transmuting the collective identity of the village.

The picture, however, is not all doom and gloom. Dong villages are resilient; they have always been accustomed to adjusting to new challenges. In-built to their architectural 'DNA' are the concepts of adaptability and flexibility. The timber frame is the prime example: a structural system able to mitigate the steep topography or extend homes to accommodate new family members. The narrative behind these mutations — how villagers negotiate change (social, financial, environmental, and health) — was the inspiration behind our alternative proposal.

Timber ecosystem

A profound sense of social cohesion and a deep relationship between people and nature are ideas embedded within Dong culture. As Gaobu struggles to

come to terms with the demands of modern life, it is this balanced social condition that is the key to how the village can survive and potentially prosper. Traditionally timber is at the heart of this unity and is a critical component of the Dong ecosystem in the same manner as rice. Environmentally it is a naturally sustainable material (the Dong harvest cycle being approximately 20 years) while culturally it carries special cosmological status: there are very few communities in the world where every built component of their environment is made from the same material.

As these traditions quickly vanish, and contrary to the prevalent situation on the ground, it is our belief that timber represents the key to how Dong villages can modernise to prepare for the future. By combining traditional flexibility with modern timber technology, new life can be injected into this versatile material. As a system it offers — if adapted and upgraded — the natural antidote to the prevailing post and slab concrete construction system that has swept over not only Dong villages, but most Chinese villages.

Our prototypes represent the first step in challenging these foreign forms of construction. They pave the way to potential new ways of integrating traditional crafts with new construction methods, acting through micro-amendments that highlight economic and technical possibilities. Through bottom-up collaborations, rather than top-down impositions, the prototype becomes a surgical tool to adjust to existing conditions. Beyond offering alternative solutions, the prototype also raises questions critical to everyday Dong life, and if successful can become typologies that other communities can replicate.

The idea of adjusting existing building typologies is a notion that has always resonated within Dong culture. Villagers construct buildings similar to their neighbours. Hence if one family builds a concrete frame house, others quickly follow suit, attracted by the modern conveniences the new system brings. Using the same philosophy, should our prototypes be seen as a success, they could inspire other neighbouring villages to introduce similar programmes and in the process launch a network of centres.

Finally, looking ahead, timber also embodies many of the sustainable solutions Dong architecture needs to survive. The 'Ganlan' Dong house, originally conceived as the archetypal ecological house, must evolve to incorporate modern technology such as engineered timber.⁴³ Such technology has the potential to establish an associated local industry of micro-fabrication plants that could generate and supply a new Dong product as well as integrate the knowledge from local carpenters.

Fewer buildings, more people

Gaobu does not need more buildings, rather it needs more people. This is what all villagers unanimously agree. The next question is, how can this be achieved?

Placing a grass mark⁴⁴ on your house door is a custom that has multiple meanings in Dong culture, from casting a spell against threatening ghosts, to announcing a birth in the family. Imperceptible signs such as these are loaded with subtle symbolic meaning, nuances that outsiders mostly don't per-

ceive or often don't understand. These rituals have actively survived for centuries, passed down from one generation to the next. However, within the last 50 years they have first come under threat by the Cultural Revolution, and more recently, been challenged by the advent of rapid modernisation.

What is apparent through our direct interaction with the community, is how most of these esoteric patterns are not fixed entities, but relative fluid states that adapt and change to conform to the times. As an anecdote, all Dong dwellings have a temple dedicated to Sax, their female goddess housed within a small timber alter located in the living room. Today these temples still exist and remain venerated, but invariably they sit alongside a portrait of Mao Zedong and President Xi Jinping, in natural coexistence. A foreign reading would quickly associate this as a forced marriage, imposed propaganda, a form of social entropy. However, we believe the reality is more subtle and part of a calibration process which exemplifies many of the features that could allow the village to adjust to contemporary life.

Gaobu is today in a state of transformation and it would be foolish to preclude this change. Our thesis maintains that the point of departure must be the 'here and now', the existing culture as it is rather than a nostalgic version of the past that the authorities are so keen to incubate. In a paradoxical way, technology is part of this daily reality, with most villagers possessing a mobile phone and internet transactions being the norm rather than the exception. What is required is the ability to pair this technology with existing crafts, link the carpenter with new timber technology, and in the process establish an innovative entrepreneurial model.

By focusing on one specific Dong village, our research at this stage has identified the latent potential of Dong architecture that is linked directly to craftsmanship and the use of a single fabrication material. Revealing to the inhabitants and local authorities the potential to think visionary and differently, heritage should allow these communities to progress into the future rather than regress into the past.

Notes and references

1. Wang Shu, 'The Possibility of Coexistence Between Urban and Rural', the Royal Academy 26th Annual Lecture (London, 2016).
2. Le Corbusier, *Maniera di pensare l'urbanistica*, trans. by Giuseppe Scattone (Bari: Laterza, 2009).
3. *Ibid.*, p. 5 (author's translation).
4. Tourism is widely seen by the central Chinese government, as a major driving force behind transforming the means of economic growth from relying on manufacturing output to becoming dependent on consumer spending. To this effect, Premier Li-Keqiang has introduced, in 2018, the concept of 'All in one tourism' an approach that combines manmade attractions such as amusement parks and museums with natural and historical heritage sites. Taken from Daniel Ren, 'Mainland Tourism Takes Too High a Toll', *South China Morning Post*, 17 March 2018, Hong Kong.
5. A reference to Xialou Guo's documentary film 'Concrete Revolution' (2016).

6. Retrieved from a documentary film by Linda Poon 'China's Villages Are Dying' (2015). National Public Radio: <<http://www.npr.org/sections/goatsandsoda/2015/01/05/372491552/chinas/villages-are-dying-a-new-film-asks-if-they-can-be-saved>> [accessed 20 December 2019]
7. Martin King Whyte, *One Country, Two Societies: Rural-Urban Inequality in Contemporary China* (Cambridge, MA: Harvard University Press, 2010), pp. 1–25.
8. This urban/rural dual system is connected with the Hukou household registration policy, which categorises people according to their place of birth. From its introduction, all social programmes provided by the government (land ownership, education, health) depend on this status.
9. Wang Shu, 'The Possibility of Coexistence Between Urban and Rural'.
10. 'Village hollowing' is a geographic phenomenon that refers to the neglect and vacancy of dwellings in rural villages. When most young people migrate to cities, the remaining villagers prefer to live in new buildings on village borders, leading to empty and ageing centres, a process that reduces social cohesion.
11. 'Dong Villages' (2013) <<http://whc.unesco.org/en/tentativelists/5813>> [accessed 20 December 2019],
12. Peter Blundell Jones, *Architecture and Ritual: How Buildings Shape Society* (London: Bloomsbury, 2016), p. 216.
13. Xing Ruan, *Allegorical Architecture: Living Myth and Architectonics in Southern China* (Honolulu: University of Hawai'i Press, 2006).
14. Ibid., p. 10.
15. Klaus Zwerger, *Vanishing Tradition: Architecture and Carpentry of the Dong Minority of China* (Bangkok: Orchid Press, 2006).
16. Ibid., p. 57.
17. The 'Chuandou' timber framing system is mainly composed of beams which penetrate or cross the columns at different heights to assemble the framing system.
18. *Urban Flotsam: Stirring the City*, ed. by Raoul Bunschoten (Rotterdam: 010 Publishers, 2001).
19. Cedric Price, 'Anticipating the Unexpected', *Architects' Journal*, 204 (5 September 1996), 27–39 (p. 28). Cedric Price: Magnet. Retrieved from Architectural Foundation website: <<http://www.architecturefoundation.org.uk/programme/1997/magnet-cedric-price>> [accessed 20 December 2019].
20. Kester Rattenbury, *Cedric Price: Magnet* (London: Architecture Foundation, 1997), unpaginated. <https://issuu.com/the_architecture_foundation/docs/as973_exhibition_programme> [accessed 11 January 2020].
21. A reference to the phenomena of 'Disneyfication': the application of the theme park repackaging paradigm to entice tourists.
22. Klaus Zwerger traces these properties back to Neolithic times: Zwerger, p. 2.
23. Most of Dong settlements are located in mountainous regions, surrounded by a healthy supply of China fir trees.
24. A point developed in. Holger Schnädelbach, 'Adaptive Architecture: A Conceptual Framework', in *Proceedings of MediaArchitecture, Urban Context and Social Practices, 3rd International Conference on the Interaction of Architecture, Media and Social Phenomena* (presented at MediaCity, Bauhaus-Universität Weimar, Germany, 31 October 2010), pp. 523–56.
25. Stewart Brand, *How Buildings Learn: What Happens After They're Built* (New York: Viking Press, 1994).
26. Raoul Bunschoten, 'Urban Prototypes', in *Ecological Urbanism*, ed. by Mohsen Mostafavi and Gareth Doherty (Baden: Lars Müller, 2010), pp. 616–27.

27. In 2013 the National Commission of the People's Republic of China nominated to the UNESCO World Heritage Committee a series of Dong villages for World Heritage Preservation status. Status is still tentative.
28. In total more than 100 students from both The Chinese University of Hong Kong and Guangzhou University enrolled into the programme.
29. Gaobu lies on the border between two provinces, Hunan and Guoxi, and was difficult to access by non-local people until recently, when the Hunan government built a modern highway connecting it directly to the local administrative town of Tongdao.
30. D. Norman Geary and others, *The Kam People of China* (London: Routledge, 2003).
31. Every Dong village has a male and female chief as well as a government chief who typically does not live in the village.
32. The Latin name for China fir is *Cunninghamia Lanceolata*
33. For a comprehensive description of the customs of Dong carpenters, see Derong Kong, 'The Dong Oral Architecture: Carpenter, Architecture and Phenomena Among the Dong People in the Southwest of China' (unpublished doctoral thesis, University of Sheffield, 2016).
34. Approximately 1800 USD.
35. Ai Wei Wei and Anthony Pins, *Ai Wei Wei Spatial Matters: Art, Architecture and Activism* (London: Tate, 2014), p. 117.
36. The workshops have been recognised by The National Board of Architectural Accreditation of China who awarded the project second prize for the best architectural collaborative project in the country in March 2017.
37. Gaobu's new Cultural Community Center, completed in late 2017, sits at approximately 500 m².
38. Christopher Alexander, Sara Ishikawa, and Murray Silverstein, *A Pattern Language* (New York: Oxford University Press, 1977), p. 638.
39. From these events it is evident how prototypes A and B are inherently linked.
40. Matthias Messmer and Hsin-Mei Chuang, *China's Vanishing Worlds: Countryside, Traditions and Cultural Spaces* (Cambridge, MA: MIT Press, 2013), p. 14.
41. A concept developed by the anthropologists Bronislaw Malinowski and Franz Boas: see Matthew Engelke, *Think Like an Anthropologist* (London: Pelican Books, 2017), p. 51.
42. During our second Gaobu workshop, in July 2018 we discovered to our astonishment that the local government was in the process of building a new satellite village (Gaobu 2) accommodating more than 50 new homes with public subsidies.
43. Engineered timbers enable the production of composite panels from various forms of wood products and associated by-products. The most interesting application of this technology applied to Dong buildings would be cross-laminated timbers (CLT) which would allow the indigenous China fir stock to be processed into a new prefabricated construction material.
44. An amalgamated bunch of grass and rice grass, together with other natural sources, hooked onto a nail at the top of the main entrance to the family dwelling.