

Following the Transfer of Technology: The Embedded Social Connections in Taiwan's Tobacco Settlements

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Abstract

This paper examined the way in which the transfer of technology of the tobacco curing method shaped the local social relationships in Taiwan's tobacco settlement. Ever since the tobacco industry had been initiated by Japan's colonial policy, the tobacco leaves had been cured in tobacco buildings, which had a distinctive Japanese design. The farmers perceived the curing process to be the hardest part of their work. Using tobacco buildings to cure leaves was a complicated process, since it involved a combination of labour power exchange, time management and personal knowledge of temperature and humidity control. In this situation, a particular "labour power exchange" emerged, which helped farmers to manage their time and labour power on the one hand, and on the other hand, an intimate social relationship was formed and tobacco buildings became a social centre in the local area. However, following the development of technology, curing machines were introduced to replace the traditional tobacco buildings in the 1970s. This transformation not only changed the curing method, but it also had an impact on local social relationships. By drawing on documentary research and interviews conducted with farmers and residents in tobacco settlements in Taiwan, this paper attempts to explore the story of how people, places and the tobacco industry are connected by this transfer of technology in the contemporary society.

Keywords

Tobacco, Technology, Social Connection, Heritage, Taiwan

1. Introduction

This paper examined the ways in which technological transitions in tobacco curing methods shaped local social

relationships in Taiwan's tobacco settlements. Tobacco is understood to have been an important tool in the global extension of European colonial power in the 16th and 17th centuries (Musgrave & Musgrave, 2000). A few scholars have written about the economic role of tobacco (Hart & Mather, 1961); in terms of mobility, labour and the tobacco industry (Harrison, 2010) and in terms of tobacco farmers' life transitions in Kentucky tobacco agriculture (Ferrell, 2009). However, very little work has been done on the role of this crop in an Asian context. In the context of Taiwan, most studies related to the tobacco industry have focused on architectural history and spatial meaning (Jhong, 2006) and the history of monopoly policy (Yap, 2006), whereas the understanding of the way in which people, places and the tobacco industry are connected by technological transitions in contemporary society is relatively limited. By drawing on documentary research and interviews conducted with farmers and residents in tobacco settlements in eastern Taiwan, this paper attempts to explore the story of how people, places and the tobacco industry are connected through technological transitions.

The archival research is important in terms of gathering broader information about the history of tobacco cultivation, colonisation and colonists' lives in eastern Taiwan. The resources consulted included official archives from both the Japanese colonisation and the post-war period and publications of the Monopoly Bureau on the tobacco industry. Interviews were also used in this research to explore the stories embedded in the society surrounding tobacco agriculture as well as to "expose differences, contradictions and, in short, the complexity of unique experience" (Bennett, 2002: p. 151). The interviewees included tobacco farmers, township officials, local residents and local community development associations. They all provided diverse empirical materials for this research.

This paper is divided into three sections. First, the historical background of the tobacco industry in Taiwan is discussed. Tobacco cultivation was initiated by Japan's colonial policy in 1913, and the industry thrived for more than seventy years in Taiwan. Japanese culture has long influenced tobacco cultivation, and this influence can still be seen today. The second section focuses on the social aspects of curing technology and tobacco buildings. Different examples are used to illustrate that tobacco buildings were not only production tools used for curing tobacco leaves; they are also a kind of social centre in the tobacco settlements. Lastly, a heritage approach is adopted to examine the relationship between technology and people when a tobacco settlement is transformed into a tobacco heritage landscape.

2. The History of Tobacco Cultivation in Taiwan

Tobacco cultivation has a long history in Taiwan. Indigenous people in Taiwan established customs of smoking and chewing tobacco leaves, they also cultivated indigenous tobacco leaves. The Han Chinese began cultivating tobacco in the 15th century. Initially, tobacco cultivation took the form of small scale farms scattered widely across Taiwan. The period in which tobacco cultivation quickly developed and came to be called a "tobacco industry" in Taiwan was during the Japanese colonisation. Tobacco became a governmental monopolistic crop in Chinese Taipei in 1905 during the Japanese colonisation, when the Office of the Governor-General considered tobacco to be a good source of revenue to support the treasury. After tobacco became a government monopoly crop, the finances of the Japanese government in Chinese Taipei became independent from those of Japan itself. A variety of species were initially grown in Taiwan; however, the Brightleaf tobacco variety was the most successful, whereas other species like oriental tobacco and Burley were given up. Brightleaf tobacco is a type of *Nicotiana tabacum*. It is also known as "Virginia tobacco", and in Taiwan, people call it "Yellow-type" or "American-type" tobacco.

2.1. The Immigration Policy and Colonists' Tobacco

Brightleaf tobacco was first cultivated by the Japanese colonists in the immigration villages. The Japanese authorities established an immigration policy in 1919, and the first three colonist immigration villages were set up in eastern Chinese Taipei. This was a hard time for the colonists. The following quote reflects the colonists' memories as collected by the Japanese authorities:

... It was hard work to cultivate the new land; when we started to plant crops, many wild hogs destroyed the plants and ate them all. It was so painful. We lost all the crops we grew in the first and second years (Hualien, 1928: p. 53).

As the quote shows, there were a great many wild animals, which destroyed the crops immigrants grew, and

disease and natural disasters claimed many lives; moreover, due to the relatively infertile land and the lack of good irrigation systems in eastern Taiwan, economic conditions were not as good as expected when the immigration village was established (Hualien, 1928). Therefore, government officials tried to find a crop that was possible to grow in the villages and that colonists could make a living from. Brightleaf tobacco was introduced from the United States in 1913 to the first immigration village in eastern Chinese Taipei as a solution to this problem. The crop was unexpectedly successful and brought the colonists a new life. As they said, “We were so lucky to have tobacco. It made our lives so much better, since the land was not fertile enough to grow other crops” (Hualien, 1928: p. 51). The Japanese authorities named the brand of cigarettes made from Brightleaf tobacco “Jasmine”. Jasmine cigarettes became increasingly popular in Taiwan, and the supply of tobacco leaves could not satisfy demand, which led to a great expansion of tobacco cultivation.

2.2. Tobacco in the Post-War Period

After the Second World War, the government monopoly policy is continued, and tobacco is still one of the monopolistic crops, because the government monopoly was an important resource that provided over 30% of the state revenue. Thus, the monopoly policy had to be tightly controlled. In the case of tobacco, tobacco cultivation became a “permitted” industry, with people who wanted to grow tobacco needing to apply for permission from the government; even the growers needed to apply for identification for building their tobacco buildings. The authorities set up several regulations to control tobacco cultivation, and if farmers did not follow these restrictions, their cultivation license could be cancelled or their cultivation area reduced. Additionally, the authorities attempted to involve more people in tobacco cultivation to expand the tobacco industry by purchasing tobacco leaves for a guaranteed price, which was an attraction to farmers. In this context, many more green tobacco leaves were cultivated in the field, and in the 1960s, many new tobacco buildings were added to the landscape. However, the tobacco industry in Taiwan began to decline in the 1980s. This was partially because Taiwan’s monopolistic tobacco and liquor market began to open to the United States in 1987, and it was also due to Taiwan’s isolated diplomatic relations and tendency for trade liberalisation. The Taiwanese government sought to actively join the World Trade Organisation (WTO), and Taiwan finally became a member of the WTO in 2002. Under this circumstance, the Monopoly Bureau was reformed as a private company entitled the Taiwan Tobacco and Liquor Cooperation (TTL). This meant that the national cigarette market was for the first time open to the United States and then to public and international companies. In addition, health awareness in Taiwan increased, and anti-smoking campaigns began to be promoted. These factors all led to the domestic tobacco market being severely contested, and domestic demand shrank. Maintaining the market for domestic cigarette and tobacco production became a huge challenge.

So far, the historical background of Taiwan’s tobacco industry has been discussed from a political economy viewpoint. In the following section, the social history of tobacco cultivation in Taiwan is explored to show how the tobacco industry helped form embedded social connections within tobacco settlements.

3. The Social History of Tobacco Building

The tobacco building was the most significant object in tobacco agriculture. However, it was not simply a tool used in tobacco cultivation in Taiwan; it was also a social centre in the tobacco settlement that catalysed relationships between people, places and the tobacco industry. The tobacco settlements in eastern Chinese Taipei were former Japanese immigration villages. After the Second World War, the Japanese retreated from Chinese Taipei and left their property behind, including the Japanese-style residences and tobacco buildings. The Taiwanese moved into immigration villages, took over Japanese properties and continued growing tobacco, since they learned the skills of tobacco cultivation from the Japanese. Under the tobacco cultivation extension policy in the post-war period, more and more people became involved in this industry; therefore, the former Japanese immigration villages soon became tobacco settlements. These tobacco settlements not only produced tobacco leaves but also shaped diverse social relationships in the local area surrounding the tobacco buildings.

In the following sections, the functions of the tobacco building in tobacco cultivation are described, and the tobacco building’s role as a social centre in the tobacco settlement is then illustrated.

3.1. The Tobacco Building and the Tobacco Curing Process in Taiwan

Brightleaf tobacco needed to be flue-cured in a tobacco building. “Flue-curing allows the leaf the shortest period

of life after picking from the plant, before it is killed by complete desiccation” (Akehurst, 1968: p. 36). The cells of the tobacco leaves are not active after the harvest, but breathing continues before the leaves drain off, which means that they continually mature and gradually lose starch and sugar. In order to protect the taste of the tobacco leaves after they have died, the leaves must be cured to retain the chemical constituents and encourage enzyme activity to produce tobacco with a better aroma and taste. “Flue-cured tobacco has the highest sugar content of all and with nitrogen kept deliberately low the sugar: nitrogen ratio is very high” (Akehurst, 1968: p. 37).

The curing process takes place in a tobacco barn, what people referred to as a tobacco building in Taiwan, which is a building with a stove, wooden tiers (or racks), a chimney, a ventilator and flue-pipes. Because Brightleaf tobacco cultivation was introduced by the Japanese, the design of the tobacco buildings is also Japanese. These buildings are characterised by a small ventilator tower at the top of the building, and this distinguished the tobacco buildings in Taiwan from those in other tobacco-cultivating countries (Figure 1).

The tobacco buildings were built with timbers. The walls were constructed of flakes made of bamboo sticks, and a mixture of yellow clay and straw was spread on these flakes to shape the wall. This was the traditional building method. The yellow clay helped to keep the heat and temperature inside the tobacco building, which were the most significant factors affected the quality of cured tobacco leaves. Tobacco leaves were cured by heat, not fire. During the curing process, temperature and humidity must be well-controlled. In tobacco buildings, the curing temperature was controlled by the amount of timbers burned in the stove. The small ventilator at the top of the tobacco building was used for dehumidifying; during the curing process, farmers needed to check how much it should be opened or closed in order to control the humidity. In short, a successful curing process required good control over timber burning, temperature modification and humidity changes.

3.2. The Social Relationships Surrounding Tobacco Building in the Tobacco Settlement

Tobacco cultivation brought not only tobacco buildings, tobacco plants, tobacco labour and economic development to the settlement but also the different social relationships surrounding tobacco agriculture. As Mitchell (2003: p. 241) points out, “the landscape is the site for the production and reproduction of social life”. I will use the narratives of an implicit social hierarchy, spirituality and the nightlife of tobacco cultivation to illustrate how farmers produced the tobacco landscape and how the landscape simultaneously supported the social relationships surrounding tobacco cultivation.

3.2.1. An Implicit Social Hierarchy

Tobacco is not simply an economic crop, it is also a political crop. As mentioned above, tobacco was a kind of saviour for the Japanese colonists; however, it had a different meaning for the Taiwanese people:



Figure 1. Osaka-style tobacco building (conserved) in Fonglin, eastern Taiwan, photo taken by the author in 2011.

They (the authorities) thought the Japanese income must be higher than that of the Taiwanese, because the Japanese were first class citizens, so they could grow tobacco. They must have something different to cultivate to make them different from Taiwanese people. That was why the Japanese grew tobacco in the village; tobacco increased their income which meant they were dignitary.

(Mr. Liao, personal communication, March 6, 2011)

As Mr. Liao points out, during the Japanese colonisation, only Japanese people were allowed to cultivate tobacco in immigration villages. The Taiwanese were not permitted to cultivate tobacco; they could only work as tobacco labour for the Japanese. This illustrates that tobacco agriculture was full of politics, and further, if tobacco cultivation is conceived as a kind of technology, such technology helped to underpinned the Japanese colonisation and maintained the social hierarchy between Japanese people and people of Taiwan region.

In 1959, the Taiwanese authorities revised “The management regulation of tobacco cultivation of the Monopoly Bureau in Taiwan Province”, and applicants who were given permission to grow tobacco had to adhere to certain conditions. First, their cultivated land had to be suitable for growing tobacco plants. Second, the applicants’ families had to have sufficient labour power (e.g. at least two family members over sixteen years old). Third, the applicants had to have enough funds. Fourth, the candidates had to have tobacco buildings ([Taiwan Tobacco and Wine Monopoly Bureau, 1996](#)). It seems that people who wanted to become involved in the tobacco industry had to have quite a high level of savings. As one local resident said:

People who had tobacco buildings were usually rich enough to build a tobacco building. Cultivating tobacco was just like running any business; they needed to recruit labourers, organise workers and deal with the Monopoly Bureau. If you have a tobacco building, that means you are a rich person and a businessman who has good enough leadership skills to run this business. My family was a poor family, and my parents were local farmers. They did not have the money to build a tobacco building or the ability to run a tobacco business.

(Mr. Huang, personal communication, April 7, 2011)

According to the regulations and Mr. Huang’s words, tobacco buildings played a significant role in the tobacco industry because ownership of a tobacco building was one of the four conditions for obtaining permission to cultivate tobacco, and tobacco building ownership was also a symbol of wealth.

Another reason tobacco farmers were wealthier than common farmers was that the Monopoly Bureau guaranteed the purchasing price of tobacco. Even if the quality was not good, the Monopoly Bureau still bought it, so tobacco farmers usually had a stable income. In this respect, tobacco cultivation influenced the construction of a social hierarchy in the tobacco settlement because tobacco families were richer than common families; also, as the interviewee mentioned, tobacco farmers were seen as possessing better leadership abilities than others. Therefore, the tobacco building was not only a tool used for curing tobacco leaves; it was also a symbol of wealth and leadership.

Additionally, it was a symbol of dignity during the Japanese colonial period because only the Japanese could grow tobacco during that time, the unbalanced relationship between the Japanese and the people of Taiwan region was embedded in the landscape. Nevertheless, although this kind of unbalanced social relationship are hardly revealed, they are actually inscribed and represented in the ways the landscape is shaped and produced ([Duncan & Duncan, 2001](#)), as I showed in the case of Taiwan’s tobacco agricultural landscape.

3.2.2. A Collaboration between Humans and God in a Big Tobacco Family

Tobacco cultivation required a huge amount of labour power, especially during the harvest season, because tobacco leaves could not be harvested by machines and they quickly became over-mature. The mature condition was one of the significant factors that affected the cured result, and it also had an impact on the sweet taste and aroma of the cigarette. The amount of harvesting needed to be carefully arranged to match the curing space available in each tobacco building, and when the first batch of tobacco leaves was cured in the tobacco buildings, farmers needed to estimate the curing time and begin to harvest the second batch of leaves. In order to manage the time and labour needed, two or three tobacco families usually organised themselves into a group to help each other on a rotating basis. For example, the group would help the first family harvest the leaves and send them into the tobacco building to be cured, then move on to the second family’s farm to harvest the leaves before helping the third family. If they still needed more labourers, they would recruit more workers to the tobacco

farm to help them. Hanging the tobacco leaves also required more than one worker because the tobacco building was around nine metres high and contained nine levels of shelving. The leaves were usually hung by a group of three people, one of whom stood in front of the tobacco building and passed the sticks (to which the tobacco leaves were tied) to another worker inside, who then passed them to the third worker, who climbed the shelving to hang the leaves.

This illustrates how farmers found a way to react to the complexity of tobacco cultivation in order to use their time and labour power more efficiently, and this reaction created an intimate relationship between tobacco families. Based on this exchange of labour, the working group was just like a big family because they spent a long time working together. On the first day of the harvest, the first family would prepare an open-air banquet to treat all the workers, and they would do the same thing on the last harvest day to show their appreciation for the labourers' hard work. They would also prepare some fruit or food as a sacrifice to the God of the Land for a good harvest. This social activity was a kind of ceremony to announce the start of the season of hard work.

The first working day of the year, we had to prepare plenty of food to treat all the workers. We also invited our close friends or officers of the Monopoly Bureau. Everyone did it. We called it the "start-up".

(Mrs. Lin, personal communication, March 8, 2011)

This illustrates how food became a catalyst in the social relationships between tobacco farmers and workers as well as between people and God in the "big tobacco family". In other words, the social relationships extended from humanity to spirituality.

Because so much of the work done by labourers involved the tobacco buildings, tobacco buildings and curing technology could be regarded as the core of the tobacco industry. The exchange of labour power also played an important role in the harvest and curing processes in tobacco agriculture. These works were had an intimate relationship with worship of the God of the Land. These stories illustrate that tobacco buildings were not only tools for curing tobacco leaves and symbols of the tobacco landscape; they also inspired interactions between people, tobacco, the landscape and spiritual rituals. The landscape was not only a place to produce tobacco leaves; it also supported specific social relationships within the tobacco settlement.

3.2.3. Nightlife in Tobacco Cultivation

Annual earnings for tobacco farmers depended on the quality of the cured leaves, which made the curing process very important to tobacco farmers. During the curing period, both male and female farmers had to work day and night for more than a week. They needed to monitor the curing temperature at night, but they still had to work during the day. As mentioned in the last section, all the work had to be done continually. The following are tobacco farmers' explanations of why curing work was so hard and important:

Tobacco cultivation is hard work, very hard work. When my child was too young to help me, I usually carried tobacco leaves from tobacco farm to tobacco building and packed leaves in the night and continually until sunrise, then had a shower and took a nap for awhile, and it was time to wake up, because workers were coming to select and categorise all the leaves. Seriously, that was my life in the past: working day and night.

(Mrs. Hsu, personal communication, April 27, 2011)

The curing work was so hard. You could not sleep the whole night. The curing process took a week at least. The leaves were cured in the tobacco building, and someone had to be there to monitor the process day and night. If you fell asleep when monitoring the curing temperature during the night, the fire was extinguished and became ashes, the temperature was reduced and cold air flowed into the curing space, so that the bottom of the leaves became black. You could not sleep, but you still needed to work in the day time. It was so tiring ... Curing tobacco leaves once usually earned you more than a hundred thousand dollars, which was more than you would make if you grew ten thousand square metres of rice ... No-one dared to take this responsibility for others. One time my friend said he needed to go to southern Taiwan to discuss the details of his son's wedding ceremony with his family-in-law, and he asked me to check the curing process for him. I said I did not dare to do that. I was a tobacco farmer, and I knew the risks. Everything could have been lost incautiously.

(Mr. Huang, personal communication, May 5, 2011)

These two quotes illustrate that both men and women were subject to hard working conditions. When farmers

are asked about the hardest memory of tobacco cultivation, most of them refer to the harvest and curing processes, since they had to work 24 hours all day.

Moreover, Mr. Hunag's words show the complexity of tobacco farmers' feelings about the curing process. Farmers felt tired because they worked day and night; at the same time, they feared losing everything if the tobacco leaves were burned. The tobacco curing process was too important to take on the responsibility for others; as Mr. Huang said, he refused to help his friend check the curing procedure.

During the curing week, the village was a peaceful place surrounded by a pleasant aroma with no harmful fumes in the air. I will never forget how pleasant the smell was when I interviewed a tobacco farmer while he was curing his tobacco leaves, a smell that made me feel so peaceful and calm. I could not believe that a plant that produced such a pleasant smell could become a harmful product later. At midnight, there would be several lights shining in the darkness, under which workers from different families would come across to chat with each other as they monitored the curing process, so that they would not get bored or fall sleep. Sometimes someone would take wood from the fire to cook a night-time snack (such as rice soup or corn), or use ash to roast sweet-potatoes and share it with neighbours who were monitoring the fire. Mr. Lian, a former tobacco farmer, has a specific memory of the nightlife during the curing period. His family was heavily involved in tobacco cultivation. They built five tobacco buildings next to their house and recruited many labourers to work for them. He recalled how the workers and local people would get together in front of his family's houses; farmers who cultivated sugar cane brought sugar from the refinery, and Mr. Lian's family prepared adzuki beans, mung bean soup and big ice cubes and served sweet cold soup. One of Mr. Lian's tobacco workers was good at story-telling, and people came to their place every night to listen to the stories and taste the iced desserts. As Mr. Lian describes:

In the evening, a lot of people brought their own chairs and sat down to listen to the guy telling historical stories, like *Romance of the Three Kingdoms* or *Xue Rengui's Campaign to the East*, and have some snacks. That was a very busy time, much busier than the market. It's a very nice memory of the time when we were young.

(Mr. Lian, personal communication, April 25, 2011)

According to Mr. Lian, his nice memory of the time when he was young is surrounding tobacco buildings, where people got together and enjoyed nice desserts and story-telling. In addition to producing the cured leaves, tobacco buildings helped create and maintain social connections between tobacco farmers and workers. These relationships even extended to local people who were not involved in tobacco cultivation.

As mentioned above, although the workers were unable to sleep at night, they still had to work during the day, since all the work had to be done continually. They had to harvest the tobacco leaves from the farm to prevent them from becoming too mature, and the fresh leaves harvested from the farm needed to be cured immediately. This is a painful memory embedded in farmers' minds. However, this kind of hard work also led tobacco families to develop various social activities, which gave tobacco workers nice memories. Thus, the memory of cultivating tobacco in the tobacco settlement is extremely complex because of the combination of pain and pleasure embedded in farmers' minds.

4. The New Machines

New smoke-curing machines were introduced to Taiwan in 1975. These computer-controlled machines used a "bulk curing system" to smoke tobacco leaves. The machines were automatically controlled, saving a lot of manual labour and working time, and the quality of cured leaves was better than that of those cured in traditional tobacco buildings, and the purchasing price was better, too. Therefore, it was necessary to use the new machines instead of tobacco buildings because farmers needed to improve the competitive strength of their tobacco production. Farmers were willing to pay the higher expenses for these machines, even if it meant taking on loans from the farmers' cooperative. Using these new curing machines saved up to 73% on human resources over curing the leaves with traditional tobacco buildings (Hong, 2004), because they were automatically controlled by computers. As Mr. Huang explained:

It was much easier to use the new machine controlled by the computer, I could even go to Taipei for two days after tobacco leaves were hung in the machine; there was no need to monitor it, because the computer controlled it; it was much easier.

(Mr. Huang, personal communication, May 5, 2011)

The difference between using traditional tobacco buildings and the new smoke-curing machines is clearly illustrated by Mr. Huang's account of his refusal to monitor his friend's tobacco leaves during the curing process (as quoted above). The new machines dramatically changed the ways of curing and tobacco farmers' lives. With the new curing technology, tobacco could be left without regular checks. Farmers did not need to check the temperature, humidity and the wood burning in the stove all the time, which meant it was not necessary to sleep next to tobacco buildings in the midnight to monitor the curing process. The adoption of new smoke-curing machines changed the time-consuming and labour-intensive working conditions mentioned in the former parts of this paper. This technological transition also partially solved the labour shortage problem in the tobacco agriculture during the 1960s, which was a time of industrial development and a great migration of people from rural areas to cities and from agriculture to factory work.

The use of these machines also led to a social transition in the tobacco landscape. On the one hand, because the new smoke-curing machine was computer-controlled, burning timbers to provide heat was not necessary anymore. Tobacco farmers did not need to stay up all night to monitor the heat, no smoke came out of the chimneys, no people gathered at tobacco buildings, no lights shined in the darkness at midnight. On the other hand, use of these machines also impacted the system of labour exchange. Farmers did not need human resources as much as they had in the past, the working schedule was not as strict as it was in the past, and the labour power exchange was unnecessary. The technological improvement of new curing machines brought conveniences to the tobacco farmers, but it also weakened close relationships in the local area. As a tobacco farmer said:

the traditional curing process had a very human aspect ... the leaves were cured in the winter. It was so cold and we roasted sweet potatoes, corn or squid on the stoves of the tobacco building. We shared food and drank together; it was so nice! But when we started to use new curing machines, that kind of social connection was gone. It was such a shame.

(Mr. Liao, personal communication, April 29, 2011)

Mr. Liao's words points out the embedded connection between technological development and social relations in the tobacco agricultural society, which illustrates the ways human and non-human factors are connected and unseparated. In his work, which discusses the relationship between strawberry labourers, social connections and the political economy surrounding the strawberry industry, Mitchell claims that:

The landscape is a concretisation or reification of the social relations that go into its making. It is the phenomenal form of the social processes and practices of production, consumption, and exchange as complex as those may be (2003, 240).

Mitchell's idea is reflected in the fact that the tobacco landscape is not only about producing tobacco leaves. There are different social relationships embedded in the making of this agricultural landscape, where practices of cultivation, social collaboration, spirituality, the exchange of time, labour and cash crops, and the entangled feelings of pain and pleasure are all inscribed in the tobacco landscape. Transitions in technology played a particularly crucial role in the way these social connections were formed and shaped in Taiwanese tobacco agriculture.

5. The Stories of Technology and Social Connections Continue

As the traditional curing process was replaced by new curing machines, this technological transition changed the local social relationships and, quite recently, tobacco cultivation ended in most tobacco settlements in Taiwan. Consequently, several of these settlements have attempted to commemorate their once-thriving tobacco cultivation, which means that tobacco agriculture in these settlements has been transformed from a productive agriculture to a kind of post-productive agricultural heritage. In this vein, the story of technological transition and the social relationships surrounding tobacco cultivation become collective memories. These memories are recorded, preserved and represented through diverse means of commemoration. For instance, a few local museums in Taiwan display the history of local tobacco agriculture, the former tobacco farmers have been trained to be historical guides, and traditional tobacco buildings have been conserved or reconstructed in local areas. Some of them have been repurposed as display halls, bed and breakfasts, storage buildings or residences. As mentioned in this paper, tobacco settlements in eastern Chinese Taipei have an intimate connection to Japanese colonial

history. Therefore, when those tobacco landscapes become heritage sites, the legacy of the tobacco industry works to evoke stories of different social relationships in the past, namely the struggles of Japanese immigrants, the social hierarchy between the Japanese and the people of Taiwan region, the collaboration between different tobacco families, the social nightlife during the curing process, and the connection between farmers and technological transitions. At the same time, the stories of an on-going heritage are also embedded in the same landscapes, since tobacco settlements are in the process of becoming agricultural heritage-landscapes. In this way, people continue to learn about the relationship between human activities and non-human elements (such as technology) in tobacco agriculture through the commemoration of historical tobacco agriculture. In this vein, the tobacco building is transformed from a place that produces cured leaves and social relationships to a space that preserves history and memories. When people visit a conserved tobacco building and a tobacco farmer explains and displays the curing procedure and the function of the building, the social relationship between curing technology and tobacco workers is transformed into new associations among the tobacco legacy, historical interpreters and historical visitors. The past and the present are entangled and embedded in the tobacco settlement's "heritagisation".

6. Conclusion

This paper aims to examine the ways in which technological development and social connections have intertwined in Taiwan's tobacco industry. Different materials were used to explore the stories of social relationships surrounding the tobacco industry in both the colonial and post-colonial periods. Tobacco cultivation was political, since it helped to shape the social hierarchy in Japanese colonisation. It was also a high-profit industry, which meant that tobacco farmers were perceived to be richer than others. It was labour-intensive and time-intensive, and while tobacco workers contributed their labour to the production of tobacco leaves, the tobacco landscape also acted as a support for the various social relationships surrounding tobacco agriculture. These social associations were all interlinked through the curing technology of tobacco cultivation.

When the new curing machine was introduced in Taiwan, the tobacco building used for the traditional curing method was replaced. The new curing method saved both time and labour; tobacco farmers no longer needed to work long hours in tobacco buildings. These factors led to the disappearance of the social relationships surrounding tobacco buildings. However, it seemed that the stories of technology and social connections never ended; several tobacco settlements in Taiwan commemorated their once-thriving tobacco industry, and tobacco agriculture had transformed into a kind of agricultural heritage. In this context, the stories surrounding tobacco cultivation, tobacco workers, tobacco buildings and the tobacco landscape were also transformed into a social connection between tobacco heritage, historical representation and heritage tourists at post-productive tobacco agricultural heritage sites. Tobacco building as a kind of curing technology is not only helped people produce cured tobacco leaves; they also catalysed the connection between people, objects and places, and they now represent the past and evoke local collective memories. When tobacco buildings become agricultural heritage, they act as historical tributes that bring the past into the present.

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