

DIETARY CONDITIONS AND DIFFERENTIAL ACCESS TO FOOD RESOURCES  
AMONG THE VARIOUS CLASSES DURING THE HAN PERIOD

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# DIETARY CONDITIONS AND DIFFERENTIAL ACCESS TO FOOD RESOURCES AMONG THE VARIOUS CLASSES DURING THE HAN PERIOD

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In this thesis, I study how food resources and dietary conditions were determined by social and economic status during the Han period in China, B.C. 206~A.D.220. Even though earlier scholars have published research concerning the Chinese food culture of this period, these studies were limited in that they only illustrated the dietary culture of the upper class or the available food resources in one geographic area. Also, without any persuasive data, it has been assumed by these earlier scholars that there were big differences in food resources and food consumption between the upper and lower classes.

In this thesis, for comparison among the classes, I divide the social and economic classes into five stratified groups: nobles, officials, peasants, soldiers and convicts. After a brief introduction of the nature of each social class, I examine the food resources and nutritional condition of each group using information such as the wealth and income of each group, the market price of food resources, the agricultural products of peasants, and the amount of food distribution to soldiers and convicts. I found these data from archaeological remains, received historical records and pictorial data, and excavated texts.

This research shows a broader view of Chinese dietary condition focusing not only on the variety of food resources of nobles, but also on the different food accessibilities among the officials, and the food deficiencies of peasants. It also deals with the situations of food supply for soldiers and convicts in an effort to reveal the true dietary consumption and nutritional conditions for all Chinese. This research proves that the various classes during the Han period in China had different food resources and dietary conditions.

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## PREFACE

*You have filled my heart with greater joy than when their grain and new wine abound.*  
(Psalms 4:7)

Since I decided to study food culture and history, I have had a dream to reveal how food culture and the dietary condition of population impact the development and decline of the society. I started to research the food culture during the Han period in China to find the fundamental relations between food culture and social development with a historical perspective. Even though this thesis is limited to the food resources and the dietary condition during the Han period, I hope this research can be the fundamental source for the future research. This is one of the first steps of my long journey to explore this new field.

First of all, I would like to thank you, God, for consoling me and filling my heart with great joy whenever I look for you. I confess that this is your job. Also, while I studied in this program, I always thank God for meeting my advisor, Dr. Anthony Barbieri-Low. He is the person who made this research possible. He was the best advisor, the best counselor, the best tutor and the best scholar, with a brilliant head and warm heart. Also, thank to Dr. Katheryn Linduff and Dr. Kathleen DeWalt for helping me to refine and finish this thesis.

Without the support of my family members, I could not put my mind in this work. I thank my sweet husband Jin, who is my best friend and best assistant. He has supported me with everything he could do. My father, who is my best advisor, always helped me to bring new ideas and encouraged me to develop them. My mother, who is my role model, supported me with her prayer. My parents-in-law also allowed me to continue this study with their full support and love. I really appreciate them supporting me mentally and financially. I also thank my sisters, Jungsil and Hansil. You are always in my heart.

Above all, it was my pleasure to study at University in Pittsburgh, which has a wonderful program and great collection for East Asian Studies.

## 1. INTRODUCTION

In a society, the food consumption and the dietary condition of members has an important and direct influence on social stability and cultural development. William McIntosh mentions in the preface of his book, *Sociologies of Food and Nutrition*, that “Food and nutrition have played significant roles in the change and development of society through their effects on resource production and population growth.”<sup>1</sup> Therefore, during the Han dynasty in China (B.C. 206-A.D.220), which created a foundation for Chinese culture over a four hundred- year period, the food supply and the nutritional condition of individuals were also essential factors in maintaining and developing the society and culture.

Several scholars have researched the Chinese food culture of the Han dynasty. K.C. Chang’s important work concerning Chinese food culture covered great chronological and geographical territory. He used archaeological data and historical records to reveal Han Chinese food resources and the methods of food preparation. For example, he used kitchen scenes from several mural paintings or that from stone reliefs in Han tombs to show that there were many protein resources such as mammals, birds, and fish during the Han period (Figure 1, 2).<sup>2</sup> Also, Michele Pirazoli-t’Serstevens’ study of the dining arrangement from the *Mawangdui* 马王堆 tomb helps us understand the dining habits of the upper class during the Han dynasty. In addition to these scholars, the work of Frederick Simoons, E. N. Anderson, H.T. Huang and Shinoda Osamu also give us much information concerning the food culture during the Han period.

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<sup>1</sup> William. A. McIntosh, *Sociologies of Food and Nutrition* (New York and London: Plenum Press, 1996), v.

<sup>2</sup> K.C.Chang, *Food in Chinese culture: anthropological and historical perspectives* (New Haven: Yale University Press, 1977), 182.





Figure 1. Han mural of kitchen scenes from a late Eastern Han tomb at *Pangtaizitun*<sup>3</sup>



Figure 2. Mural of kitchen scene from a late Han dynasty tomb at *Sandaohao* in Liaoyang, Liaoning<sup>4</sup>

However, these studies about food during the Han period were limited in that they only illustrated the dietary culture of the upper class or the available food resources in one geographic area. While these earlier scholars devote many pages to describing the varieties of food resources available to the upper classes, they simply mention that people in lower classes

<sup>3</sup> Chang, *Food in Chinese*, 182., Lee, Wenxin. "Liaoyang faxian de san zuo bi hua gu mu," *Wen wu zhan kao zi liao*. no.5 (1955), 27-28.

<sup>4</sup> Chang, *Food in Chinese*, 182., Lee, "Liaoyang faxian,"30.

suffered from lack of food resources, basing their statements on historical records such as *Hanshu* 漢書 and *Hou Hanshu* 後漢書.<sup>5</sup> Also, without any persuasive data, it has been assumed that there were big differences in food resources and food consumption between the upper and lower classes.

According to Peter Garnsey, “(Food) availability is determined by the physical environment and the economic, social and political structures.”<sup>6</sup> It means that people experience differential access to food resources according to their social and economic status. I think this should be fully considered in order to understand Han people’s food resources and dietary condition in their daily life more precisely.

Therefore, in this research I will categorize the social classes of Han period into five groups, which represent the various levels of economic status: nobles, officials, peasants, soldiers and convicts. Hereditary nobles were the highest class in Han society. Officials were also rulers, but they experienced big differences in political and economic status according to the rank of their positions. As one of the ruled classes, commoners consisted of four groups: scholars, farmers, artisans and merchants. Among them, farmers were the largest group among the commoners, and peasants who worked land of 100 *mu* 畝 (= 4.6 hectare or 11.39 English acres) or less and tenants who worked on rented land comprised more than 90% of the farmers. Therefore, I chose the peasants as a group who represents the dietary situation of commoners in Han society. Also, the food consumption of soldiers can show a special situation of commoners’ food culture, because all male commoners could be conscripted for two years as a soldier during the Han period. For the lowest echelon of society, because there were big differences in dietary

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<sup>5</sup> Chang, *Food in Chinese*, 75.

<sup>6</sup> Peter Garnsey, *Food and Society in Classical Antiquity* (Cambridge: Cambridge University Press, 1999), 22.

condition among the slaves according to their owners, I will instead examine the food resources of convict laborers as representative of those who had the lowest status in Han society.

## 2. SOURCES

The sources for this research can be divided into three categories: archaeological evidence, historical records and texts, and the secondary literature of modern scholars.

First, the archaeological evidence from the tomb at *Mawangdui* and bamboo slips from *Dunhuang* 敦煌 and *Juyan* 居延 provide vivid information for reconstructing a portion of Chinese food culture. The tomb, which was uncovered on the eastern part of *Changsha* 长沙 in Hunan Province in 1972, shows the dining habits of nobility with well-preserved food remains and nametags which indicate the food in the containers. The bamboo slips recording the purchase and consumption of chickens uncovered from the *Xianquan* 懸泉 site at *Dunhuang* help us to see a part of official's food consumption. The bamboo slips from the *Juyan* area tell us the prices of food (see table 1) and the amount of food distributed to soldiers during the early Han period. Also, I used Han tomb reliefs showing the production of *doufu* 豆腐 to argue that people already utilized *doufu* as a protein source in the Han period.

Second, several historical records and books also contain some data concerning food conditions during the Han period. Some description about the dietary condition of officials and commoners in the *Shiji* 史记, *Hanshu*, *Hou Hanshu* and other Chinese texts are good sources to reconstruct the dietary condition during the Han period. For example, around 150 A.D. in the essay of *Zhenglun* 政论, Cui Shi 崔是 wrote about the food consumption and expenditure of officials, who earn 20 *shi* of unhusked grain and 2,000 coins a month along with the price of

foodstuffs and other items.<sup>7</sup> Also the text *Jiuzhang suanshu* 九章算術,<sup>8</sup> the earliest specialized mathematical work composed around 200 B.C., also gives the price of commodities and exchange rates of grains (table 1). In addition to these books, the recovered portions of the Qin and Han law code also show the normative amount of grains that convict laborers were supposed to receive.

**Table 1. The Prices of commodities during the Han period**

	Juyuan han Jian (coin)	<i>Jiuzhang suanshu</i> (coin)
Land (/mu)	20+~100	70~300
Hemp (/shi)		70
Barley (/shi)	110	40
Bean (/shi)		30
Red bean (/shi)		50
Millet (/shi)	80+ ~ 120	100
Glutinous Millet (/shi)	150	60
Wine (/shi)		100~500
Fish (3chi=70cm)		50
Horse (1)	5,000~10,000	5454
Cow	2,500~3,000	1200~3750
Pig		300~900
Lamb		150~500
Dog	600	100
Chicken		70
Rabbit		29

<sup>7</sup> Yan, Kejun, ed., *Quan shangu sandai Qin Han Sanguo Liuchao wen* (Beijing: Zhonghua Shuju, 1965), juan 46, volume 1, 9.

<sup>8</sup> Translated by Shen, Kangshen. *The Nine Chapters on the Mathematical Art*. (London: Oxford University Press, 1999)

Third, I have read widely on secondary sources concerning the life of each social class during the Han. K.C. Chang's work about Chinese food culture and history is very important. His research helped to give me good overall picture about the food culture of China. Hans Bielenstein researched the economic status of officials. He reconstructed the salaries of officials according to their ranks.<sup>9</sup> His research is fundamental for reconstructing the officials' food consumption. With the information of Han measurements (see table 2), Michael Loewe researched the amount of food distributed to soldiers by interpreting the *Juyan* bamboo slips. Also, Hsu Cho-yun<sup>10</sup> and Hayashi Minao<sup>11</sup> did research on agricultural products, which helps us to identify the Chinese names of various grains.(see table 3) Along with the book, *The Cambridge History of China*<sup>12</sup>, these secondary sources also form a critical foundation for this research.

**Table 2. Han Measurements<sup>13</sup>**

Length	1 cun 寸		23.1 mm
	1 chi 尺	= 10 cun 寸	23.1 cm
	1 bu 步	= 6 chi 尺	1.38 m
	1 zhang 丈	= 10 chi 尺	2.31 m
Capacity	1 ge 合		19.968 cc
	1 sheng 升	= 10 ge 合	199.687 cc
	1 dou 斗	= 10 sheng 升	1.996 liters
	<b>1 shi 石</b> (= 1 hu 斛)	= 10 dou 斗	19.968 liters
Weight	1 zhu 銖		0.64 g
	1 liang 两	= 24 zhu 銖	15.24 g
	1 jin 斤	= 16 liang 两	244 g
	1 jun 鈞	= 30 jin 斤	7.32 kg
	1 dan 石	= 4 jun 鈞	29.3kg (= 64lbs, 8 oz.)
Area	1 qing 頃	= <b>100 mu 畝</b> <sup>4</sup>	11.39 English acres (= 4.6 hectare)

<sup>9</sup> Bielenstein, Hans. *The Bureaucracy of Han Times* (Cambridge: Cambridge University Press, 1980)

<sup>10</sup> Hsu, Cho-yun. *Han Agriculture* (Seattle: University of Washington Press, 1980)

<sup>11</sup> Hayashi, Minao. "Kandai no inshoku." *Tōhōgaku* 48(1975):1-98.

<sup>12</sup> Denis Twitchett. ed.. *The Cambridge History of China*. Vol.1 *The Chi'n and Han Empires 221 B.C.-A.D. 220*. (Cambridge: Cambridge University Press, 1986)

**Table 3. Chinese names of grains**

Chinese	Pronunciation	Meaning	Latin name
米	<i>mi</i>	grain or unhusked millet	
稻	<i>dao</i>	nonglutinous rice	<i>Oryza sativa</i> L.
禾	<i>he</i>	spiked millet	<i>Eleusine coracana</i>
粳	<i>geng</i>	non-glutinous rice	<i>Oryza sativa</i> L.
粟	<i>su</i>	millet	<i>Setaria italica</i> [L.] Beauve.
稷	<i>ji</i>	millet	<i>Panicum miliaceum</i> L.
粱	<i>liang</i>	millet (good quality)	
黍	<i>shu</i>	glutinous millet	<i>Panicum miliaceum</i> L.
稷	<i>ji</i>	non-glutinous millet	
麥 (=麦)	<i>mai</i>	wheat, barley	
大麦	<i>da mai</i>	barley	<i>Hordeum vulgare</i> L.
小麦	<i>xiao mai</i>	wheat	<i>Triticum turgidum</i> L.
菽	<i>shu</i>	beans	
豆	<i>dou</i>	beans	
大豆	<i>da dou</i>	soybean	<i>Glycine max</i> [L.] Merr.
小豆	<i>xiao dou</i>	red bean	<i>Phaseolus angularis</i> Wight.
麻	<i>ma</i>	hemp / Flax seed	<i>Cannabis savita</i> L.
薏苡	<i>yi yi</i>	job's tears	<i>Coix lacrymajobi</i>

<sup>13</sup> Loewe, Michael. *Records of Han administration*. Vol. 1. (London: RoutledgeCurzon, 2002) 161.

<sup>14</sup> The enlarged mu畝 of 6x 240 bu步, which was officially recognized under Wudi.

### 3. NOBILITY

Nobles were the highest class next to the imperial family in the socio-political and economic hierarchy of Han society. They occupied hereditary positions such as Prince (王) and Marquis (侯), which were given by the emperor and handed down to their descendants under the rule of primogeniture. Among the twenty ranks that people could be given by the emperor during the Han period, nobles were those who occupied the ranks from eighteenth to twentieth, whereas male commoners only held the eight lowest ranks.

Nobles had many privileges in Han society. First, they were enfeoffed with the tax income from households numbering from several hundred to more than ten thousand. They obtained their income from their fiefs by taxation. They were entitled to collect the poll tax and land tax from the various households. Sima Qian 司馬遷 estimated that on the average they collected two hundred cash from each household during the Han period.<sup>15</sup> In addition to this, they were personally exempt from taxes and corvée duty even though they had the obligation of paying tribute in gold to the emperor each fall. Also, they could not be arrested without the Emperor's permission, and their sentences for crimes were usually mitigated or remitted. Due to these privileges, along with money grants that they occasionally received from the Emperor, nobles were able to become quite wealthy.

The nobility in the Han dynasty consisted of three major groups: the imperial relatives,

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<sup>15</sup> Ch'ü, T'ung-tsu. *Han Social Structure* (Seattle: University of Washington Press, 1972), 90-91.



the meritorious officials, and members of consort families.<sup>16</sup>

Imperial relatives usually were made nobles during the Han dynasty. Under the principle of primogeniture, the eldest son of each emperor was selected as heir-apparent and the remaining sons were appointed as vassal princes. In the beginning of the Han dynasty, princes ruled their principedoms away from the capital, holding royal court, collecting taxes, and controlling independent armies and civil administration. However, later, emperor Jing adopted a policy to weaken the princes, and their privileges were limited to only collecting taxes from their fiefs.<sup>17</sup> Emperor Wen (r.180~157 B.C.) and Jing (r. 157~141 B.C.) also tried to weaken the power and the size of principedoms by reducing princes' privileges and by forcing princes to break up their fiefs among several sons and brothers, who would then be ennobled as marquises by the emperor.

By the same token, in each principedom, when a prince died, the title to the principedom was given to only one son while the others received separate marquises. Also, only one son of such a marquis inherited the title and received the fief, but other sons had to make their own living as landlords or businessman even though they continued on the books of the imperial clan and had some privileges.<sup>18</sup> In this way, imperial relatives were ennobled as princes and marquises, so that altogether 137 imperial relatives, who all had the surname Liu, were made marquises just in A.D. 37, a year after the empire had been reunified under the Eastern Han Dynasty.<sup>19</sup>

The second group of the nobility came from generals who distinguished themselves in foreign or domestic wars, including those who helped Liu Bang 劉邦 establish the new dynasty.

Emperor Gao 高祖 (Liu Bang) ennobled several loyal followers as princes because of their

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<sup>16</sup> Michael Loewe, "The Structure and Practice of Government," in *The Cambridge History of China*. vol.1 Edited by Denis Twitchett. (463-490. Cambridge: Cambridge University Press, 1986), 477.

<sup>17</sup> Ch'ü, *Social Structure*, 76.

<sup>18</sup> Martin C. Wilbur. *Slavery in China during the Former Han Dynasty* (New York: Russell & Russell. 1967) 37.

<sup>19</sup> Ch'ü, *Social Structure*, 76.

extraordinary military merit in overthrowing the Qin dynasty and defeating Xiang Yü 項羽. However, he considered them untrustworthy and unsafe, so within a few years these princes of different surname were disposed of and replaced by members of the Liu family. From this time on, princship, the highest noble rank, was exclusively reserved for the imperial relatives.<sup>20</sup>

However, the rank of marquis was frequently granted to meritorious officials such as the Imperial Chancellor, which was the highest ranking official in the empire. This was granted even to a non-noble man like Gongsun Hong 公孫弘, who was a pig keeper, when he was appointed as Imperial Chancellor in 124 B.C. This became a precedent for ennobling subsequent Imperial Chancellors during the Han period.<sup>21</sup>

The third group was the members of the consort families. The family members of an empress or empress dowager were made nobles during the Han. In the early Han, most empresses were from poor and low-status families. For example, Empress Lü, the empress of the founder of Han dynasty was a commoner just as Liu Bang was. Empress Dou's family was poor and one of her brothers was kidnapped and became a slave who made charcoal. Empress Wei, Emperor Wu's wife, also was from a humble family whose children worked as servants.<sup>22</sup> These humble people became nobles through marriage into the imperial family. However, after the time of Emperor Xuan (B.C.73-49), most consort families were either families of high officials or members of a previous consort family.

Whether the consort's family had been prominent or not, it immediately became prominent through ennoblement, which brought with it prestige and wealth.<sup>23</sup> When a boy became Heir-Apparent, his mother automatically became Empress, and then her family,

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<sup>20</sup> Ch'ü, *Social Structure*, 83.

<sup>21</sup> Ch'ü, *Social Structure*, 90.

<sup>22</sup> Ch'ü, *Social Structure*, 78.

<sup>23</sup> Ch'ü, *Social Structure*, 78.

especially her father and brothers, were ennobled as *guan nei* 關內 marquises, which was a type of lesser marquise. Also, the Empress' close relatives acquired important positions. When an Emperor died, the Heir-Apparent ascended the throne, his mother was made Empress Dowager, and the new Emperor's maternal grandfather and uncles or cousins were often granted full marquises and high positions in the government.<sup>24</sup>

Nobles, including the imperial relatives, the meritorious officials, and members of consort families, usually received income from their fiefs, estates, investments, salaries, perquisites, and imperial grants. However, since they possessed marquises ranging from hundreds to tens of thousands of households, their economic conditions varied according to the size of their enfeoffment. However, even though marquises varied greatly in value, all nobility lived luxurious lives in great mansions with private parks, slaves, singers, dancers, musicians, as well as many concubines.<sup>25</sup>

What kinds of food did the nobles usually eat during the Han dynasty? The tomb that was uncovered on the eastern outskirts of *Changsha* in Hunan Province in 1972 gives us important information about the dining habits and food resources of nobles during the early Han period.<sup>26</sup> This tomb, known as “Han tomb No.1 at *Mawangdui*”, was occupied by the wife of Li Cang 利倉 or Li Zhu Cang 黎朱蒼 (reigned 193-186 B.C.).<sup>27</sup>

According to the *Hanshu* 16, Li Cang was ennobled as the marquis of *Dai* (*Dai Hou* 軹侯) in the second year of Emperor Hui 惠帝 (B.C. 193), who was Chancellor of the *Changsha* principality ennobled with 700 households for eight years. He ranked 120<sup>th</sup> in precedence in the whole empire. After his death, his peerage was passed down to his son and grandsons.

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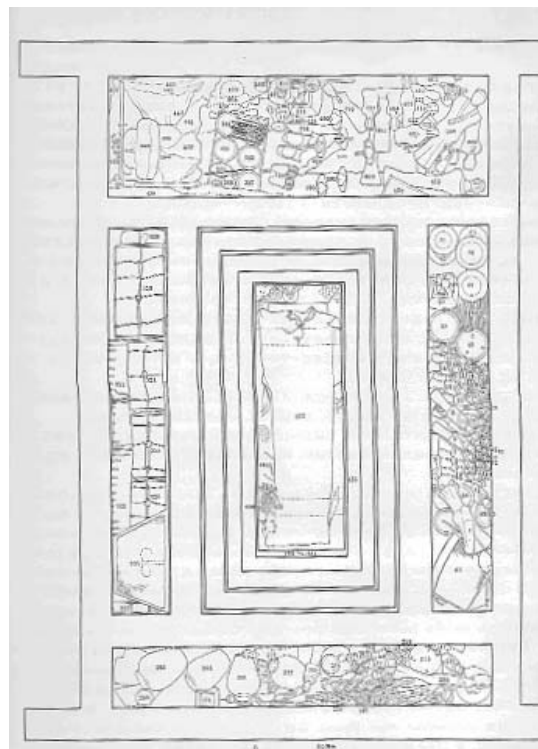
<sup>24</sup> Wilbur, *Slavery*, 38.

<sup>25</sup> Wilbur, *Slavery*, 40.

<sup>26</sup> Hunan sheng bo wu guan. *Changsha Mawangdui yi hao Han mu* 长沙马王堆一号汉墓, v.1, 2. (Beijing: Wen wu chu ban she, 1973)

<sup>27</sup> Ban, Gu. *Hanshu* 漢書 (Beijing : Zhonghua shu ju, 1997), 164.

The tomb of Lady *Dai* was located about 50 meters under the mound in a wooden chamber divided into five compartments<sup>28</sup>: a central part with four nested inner coffins and four side compartments in the north, west, east and south, each representing rooms of her house such as a bedroom or storage areas. (see figure 3)



**Figure 3. Wooden chamber of the tomb<sup>29</sup>**

<sup>28</sup> Michele Pirazoli-t'Serstevens. "The Art of Dining in the Han Period," *Food and Foodways*. 4 (1991), 210.

<sup>29</sup> Guang fu shu ju qi ye gu fen you xian gong si. *Hui huang bu xiu Han zhen bao* 辉煌不朽汉珍宝: Hunan Changsha Mawangdui xi Han mu (Taibei Shi : Guang fu shu ju qi ye gu fen you xian gong si, 1994), 148.

The four side compartments were filled with over 1,400 artifacts such as lacquer vessels, pottery, bamboo baskets, clothes, painted figures and musical instruments. What particularly interests us here is the discovery of food and eating utensils of the Han nobility. Among these rich burial remains, many artifacts were related to food consumption. There were forty-eight bamboo cases and fifty-one pottery vessels which contained foodstuffs (figure 4). Several hemp bags of agricultural products were also uncovered from this tomb chamber.<sup>30</sup> Also, more than 90% of the lacquerware in the tomb are tableware pieces used as containers for food and beer. Moreover, 312 inventory slips and 49 wooden tags help to identify the contents of some of the containers.



**Figure 4. Bamboo Case and Vessel from the tomb No.1 at Mawangdui.<sup>31</sup>**

In the north compartment, there was a lacquered tray that could hold a single meal for Lady *Dai*, just as she accustomed to eat when she was alive (figure 5). Even though we cannot estimate how much she ate exactly, we can recognize the nature and variety of dishes that were

<sup>30</sup> Fu, Juyou. 1992. *Mawangdui Han Mu Wen Wu*. Zhongguo Changsha: Hunan chu ban she. p.80.

<sup>31</sup> Hunan sheng bo wu guan. *Changsha Mawangdui* vol.2, (Beijing: Wen wu chu ban she, 1973), 143, 189.

prepared for the meal. On this tray, five small dishes that were inscribed as ‘*jun xing shi* 君幸食 (your auspicious food) contained food consisting mostly of meat dishes.<sup>32</sup> Also, there was one eared cup inscribed ‘*jun xing jiu* 君幸酒 (your auspicious beer) and two beakers for beer. In addition to these pieces of lacquerware, skewers and a pair of bamboo chopsticks were also laid out on the lacquered tray. Interestingly, from this tray we cannot find any evidence that grains or soups were served with this meal. This lavish food may have been intended only for festive occasions, but it maybe that this number of meat dishes was served everyday.



**Figure 5. Tray with meal in the tomb<sup>33</sup>**

Fortunately, due to the well-preserved food remains that were buried, we can also recognize what kind of foods Lady *Dai* had access to in her lifetime. Many kinds of food resources were included in the bamboo cases and pottery vessels for her long journey in the afterworld. These foodstuffs can be considered to be the food that she usually had access to.

<sup>32</sup> Pirazoli-t'Serstevens, "Art of Dining," 210.

<sup>33</sup> Hunan sheng bo wu guan. *Changsha Mawangdui* vol.2, p.9, 151.

The food remains in this tomb can be categorized into seven groups<sup>34</sup>: 1) grains and beans, 2) fruits, 3) vegetables, 4) mammal meats, 5) bird meats and eggs, 6) fish, and 7) spices and medical herbs. In tomb No.1 at *Mawangdui*, there were seven kinds of grains and beans, five kinds of fruits (melon, jujube, pear, plum and strawberry), five kinds of vegetables, six mammal meats, thirteen bird meats and eggs, six kinds of fish and several spices and medical herbs. (see table 4)

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<sup>34</sup> Changsha Mawangdui yi hao Han mu chu tu dong zhi wu biao ben di yan jiu (Beijing : Wen wu chu ban she, 1978)

**Table 4. Foodstuffs from Mawangdui tomb (see Appendix for pictures)**

Grains and Beans	<ul style="list-style-type: none"> <li>·Rice (稻 <i>Oryza sativa</i> L.)</li> <li>·Wheat (小麦 <i>Triticum turgidum</i> L.)</li> <li>·Barley (大麦 <i>Hordeum vulgare</i> L.)</li> <li>·Glutinous millet (黍 稷 <i>Panicum miliaceum</i> L.)</li> <li>·Millet (粟 小米 谷子, <i>Setaria italica</i> [L.] Beauve.)</li> <li>·Soybean (大豆 <i>Glycine max</i> [L.] Merr.) and Fermented Soybeans (豆豉)</li> <li>·Red lentil (赤豆, <i>Phaseolus angularis</i> Wight.)</li> </ul>
Fruits	<ul style="list-style-type: none"> <li>·Melon (甜瓜 香瓜 <i>Cucumis melo</i> L.)</li> <li>·Jujube (枣, <i>Zizyphus jujuba</i> Mill. var. <i>inermis</i> [Bunge] Rehd.)</li> <li>·Pear (梨 <i>Pyrus pyrifolia</i> Nakai)</li> <li>·Plum (梅 <i>Prunus mume</i> (Sieb.) Sieb. et Zucc.)</li> <li>·Strawberry (杨梅 <i>Myrica rubra</i> Sieb. et Zucc.)</li> </ul>
Vegetables	<ul style="list-style-type: none"> <li>·Malva (葵 冬苋葵 冬葵 <i>Malva Verticillata</i> L.)</li> <li>·Mustard (芥菜 辣菜 腊菜 <i>Brassica cernua</i> Hemsl.)</li> <li>·Ginger (姜 <i>Zingiber Officinale</i> Rosc.)</li> <li>·Lotus root (藕 <i>Nelumbo nucifera</i> Gaertn.)</li> <li>·Hemp (大麻 <i>Canabis sativa</i> L.)</li> </ul>
Mammal Meats	<ul style="list-style-type: none"> <li>·Hare (华南兔 野兔 <i>Lepus sinensis</i> Gray)</li> <li>·Dog (家犬 狗 <i>Caina familiaris</i> Linné)</li> <li>·Deer (梅花鹿 花鹿 <i>Cervus nippon</i> Temminck)</li> <li>·Ox (黄牛, 牛 <i>Bos taurus domesticus</i> Gmelin)</li> <li>·Sheep (绵羊, 羊 <i>Ovis aries</i> Linne)</li> </ul>
Bird Meats and Eggs	<ul style="list-style-type: none"> <li>·Wild goose (雁 <i>Anser</i> sp.)</li> <li>·Mandarin duck (鸳鸯, 匹鸟, 官鸭 <i>Aix galericulata</i> L.)</li> <li>·Duck (鸭 <i>Anas</i> sp.)</li> <li>·Bamboo chicken (竹鸡, 泥滑滑, 竹鷓鴣 <i>Bambusicola thoracica</i> Temminck)</li> <li>·Chicken (家鸡, <i>Gallus gallus domesticus</i> Brisson)</li> <li>·Pheasant (环颈雉, 野鸡, 山鸡, 雉, 项圈野鸡, <i>Phasianus colchicus</i> Linne)</li> <li>·Crane (鹤 <i>Grus</i> sp.)</li> <li>·Pigeon (斑鸠, <i>Streptopelia</i> sp.)</li> <li>·Owl (鸱 <i>Athene</i> sp.)</li> <li>·Magpie (喜鹊, 鹊, 飞鹊, 干鹊, 客鹊 <i>Pica pica</i> L.)</li> <li>·Sparrow (麻雀, 互雀, 家雀, 老家雀, 只只 <i>Passer montanus</i> L.)</li> <li>·Turtledove (火斑鸠, 红鸠 <i>Oenopopelia tranquebraica</i> Hermann)</li> <li>·Eggs (蛋壳)</li> </ul>
Fish	<ul style="list-style-type: none"> <li>·Carp (鲤鱼, 鲤, 礼鱼 <i>Cyprinus carpio</i> L.)</li> <li>·Crucian carp (鲫鱼, <i>Carassius auratus</i> L.)</li> <li>·Bream (刺鲃 <i>Acanthobrama simony</i> Bleeker)</li> <li>·Silver Xenocypris (银鲴, <i>Xenocypris argentea</i> Günther)</li> <li>·Catfish (鲶鱼, <i>Elopichthys bamausa</i> Richardson)</li> <li>·Perch (鲈鱼, <i>Spiniperca</i> sp.)</li> </ul>
Spices and Medical Herbs	<ul style="list-style-type: none"> <li>·Lemon-grass (茅香, <i>Hierochloë odorata</i> [L.] Beauv.)</li> <li>·Galangal (高良姜 <i>Alpinia officinarum</i> Hance)</li> <li>·Cassia bark (桂皮, <i>Cinnamomum chekiangense</i> Nakai)</li> <li>·Chinese prickly ash (花椒 <i>Zanthoxylum armatum</i> DC. and <i>Z. planispinum</i> Sieb. et Zucc.)</li> <li>·Flower bud of lily (辛夷, <i>Magnolia denudata</i> Desr.)</li> <li>·Magnolia (藜本, <i>Ligusticum</i> cf. <i>jeholense</i> Nakai et kitagawa)</li> <li>·Ginger (姜 <i>Zingiber Officinale</i> Rosc.)</li> <li>·Wild ginger (杜衡, <i>Asarum fargesii</i> Franch.)</li> <li>·Fragrant thoroughwort (佩兰, <i>Eupatorium fortunei</i> Turcz.)</li> </ul>



These archaeological remains show the food variety and the potential dietary consumption of nobles who drew on the income of 700 households during the Han. According to Sima Qian's assumption that nobles collected on the average two hundred cash from each household per year, Marquis of *Dai*'s family's basic annual income was 140,000 cash. If we consider the price of meat and grains from the *Juyan Han jian* and *Jiuzhang suanshu* (see table 1), we can assume that the family of the Marquis *Dai* was able to afford to have as much meat in their everyday lives as Lady *Dai* had in her tomb.

The food remains of the tomb No.1 at *Mawangdui* show the variety of food resources that nobles enjoyed during the Han dynasty. Of special note, they had access to a variety of meat. It seems that they gained much of their nutrition from meat, just as nobles in medieval Europe did, and this was probably related to health problems such as the heart attack which eventually killed Lady *Dai* at around age of fifty.

#### 4. OFFICIALS

In Han society, mental labor was highly valued, so the officials, as a ruling class, had superior status compared to non-officials. However, unlike members of the nobility who lived on the taxes from their fiefs, the rent of their lands and the privileges from the hereditary rights, officials basically lived off their salaries. Sometimes, the Imperial Chancellors, the highest rank of officials in early Han, were nobles, but most officials were not aristocrats.

Most government positions required a fair knowledge of the written language, so the opportunity to be officials was limited to those who had the leisure time to concentrate on study. Therefore, even though the law did not forbid any commoners except merchants from becoming officials, it was not easy for most commoners to become officials, except men of those families who had the money for study.

Usually the selection of officials during the Han period was based on recommendation. High officials had the privilege of proposing candidates, and they naturally promoted their relatives or townsmen. Provincial governors also recommend scholars and men of special ability. Then, the Minister of Ceremonies examined the recommended candidates by means of a written test and presented the results to the emperor who decided upon their appointment or rejection. Sometimes there were direct summons of officials by the Emperor. In B.C. 124, the Han government established an Imperial Academy (*tai xue* 太学) to train students for civil

service. After one year of study at this Academy, a student would be appointed to a middle or lower-level government post if he passed an examination in one of the classics.<sup>35</sup>

All Han officials were ranked on a scale of eighteen levels, and their salaries were fixed in relation to these scales. Among the eighteen ranks, sixteen ranks were identified by the ancient measure of *shi* 石<sup>36</sup> from 10,000 *shi* to 100 *shi*. Below them, there were two ranks which were not expressed in *shi*, the officials “whose salaries are in terms of *dou* 斗” and the Accessory Clerks.<sup>37</sup> However, salaries that the officials actually received did not match the rank title even though the names of each rank used ‘*shi*’, which indicates a capacity of grains. Table 5 shows the salaries list for A.D. 50. The monthly salaries varied from 350 *shi* to 8 *shi* of unhusked grain.

**Table 5. The Salary list of A.D. 50<sup>38</sup>**

Rank	Monthly salary in unhusked grain ( <i>shi</i> )
10,000 <i>shi</i>	350
Fully 2,000 <i>shi</i>	180
2,000 <i>shi</i>	120
Equivalent to 2,000 <i>shi</i>	100
1,000 <i>shi</i>	90
Equivalent to 1,000 <i>shi</i>	80
600 <i>shi</i>	70
Equivalent to 600 <i>shi</i>	60
400 <i>shi</i>	50
Equivalent to 400 <i>shi</i>	45
300 <i>shi</i>	40
Equivalent to 300 <i>shi</i>	37
200 <i>shi</i>	30
Equivalent to 200 <i>shi</i>	27
100 <i>shi</i>	16
Equivalent to 100 <i>shi</i>	Missing
Officials whose salaries are in terms of <i>Dou</i>	11
Accessory Clerks	8

<sup>35</sup> Ch'en, Ch'i-yün. “Confucian, Legalist, and Taoist thought in Later Han” in *The Cambridge History of China*. Vol.1 *The Chi'n and Han Empires 221 B.C.-A.D. 220*. Edited by Denis Twitchett. (776-807. Cambridge: Cambridge University Press, 1986), 769.

<sup>36</sup> Shi石 was the measure for capacity. According to the Michale Loewe, one shi is equal to one hu斛, which is 19.968 liters.

<sup>37</sup> Bielenstein, *Bureaucracy*, 4.

<sup>38</sup> Bielenstein, *Bureaucracy*, 126.

In the Han dynasty, usually the Three Dukes (*san gong* 三公: the Chancellor, the Imperial Counselor, the Supreme Commander) held the highest rank in the government. In the early Han period, the status of the Chancellor was almost without a parallel among the Three Dukes. However, from B.C. 8 when the cabinet was profoundly changed, each of the Three Dukes (the Grand Commandant, the Minister of the Masses, and the Minister of Works) had the same salary level, ranked at 10,000 *shi*. Below the Three Dukes, there were the Nine Ministers (*jiu qing* 九卿) who had the rank of Fully 2,000 *shi*. They were all officials of high position and were treated with great respect. These ministers also had subordinate staffs that were ranked from 1,000 *shi* down to Accessory Clerks. By the time of Emperor Ai (r.7-1 B.C.), the central bureaucracy numbered 130,285 officials, counting from Accessory Clerks up through the Chancellor.<sup>39</sup>

During the Han period, each province consisted of Commanderies (*jun* 郡), which were administered by Governors (*jun shou* 郡守, *tai shou* 太守) who ranked 2,000 *shi* and were in charge of all civilian and military affairs in their commanderies.<sup>40</sup> Every commandery was also subdivided into Districts (*xian* 縣), and these were administered by two kinds of Magistrates, *ling* 令 who ranked 600 to 1,000 *shi* with 10,000 household or more and *chang* 長 who ranked 300 to 500 *shi* with less than 10,000 households. They had the responsibility of collecting taxes, registering people and property, supervising public work, and performing rituals as well as judging criminal and civil cases in their districts. These local administrators were also aided by subordinate staff such as Assistants (*cheng* 丞) and the lesser staffs.

In fact, official salaries were distributed one half in cash and the other half in husked grain. The husked grain was given by applying the conversion ratio from unhusked to husked

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<sup>39</sup> Wilbur, *Slavery*, 33.

<sup>40</sup> Bielenstein, *Bureaucracy*, 93.

grain of 10 to 6.<sup>41</sup> Hans Bielestine made the adjusted salary list with the assumption that the average price of one *shi* of unhusked grain was 100 coins (*qian* 钱) (table 6). If we consider Eberhard's assumption that a normal family consisting of an old woman, a grown man, a grown woman, an older child, and a younger child, consumed 10.5 *shi* of unhusked grain per month,<sup>42</sup> we can also estimate the amount of surplus in cash after subtracting the average amount of consumed grain.

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<sup>41</sup> This ratio is originally from *Jiuzhang suanshu* and on wooden slips from the Han dynasty. Bielenstein, *Bureaucracy*, 130.

<sup>42</sup> Eberhard, W. "Bemerkungen zu statistischen Angaben der Han-Zeit." *T'oung Pao*. Vol.36 (1940), 5-8.

**Table 6. Adjusted salary and budget list** <sup>43</sup>

Rank	Monthly salary in cash (coin)	Monthly salary in husked grain (unhusked grain) ( <i>shi</i> )	Surplus in cash after subtracting average monthly family consumption of 10.5 <i>shi</i> of unhusked grain (coin)
10,000 <i>shi</i>	17,500	105 (175)	33950
Fully 2,000 <i>shi</i>	9,000	54 (90)	16950
2,000 <i>shi</i>	6,000	36 (60)	10950
Equivalent to 2,000 <i>shi</i>	5,000	30 (50)	8950
1,000 <i>shi</i>	4,500	27 (45)	7950
Equivalent to 1,000 <i>shi</i>	4,000	24 (40)	6950
600 <i>shi</i>	3,500	21 (35)	5950
Equivalent to 600 <i>shi</i>	3,000	18 (30)	4950
400 <i>shi</i>	2,500	15 (25)	3950
Equivalent to 400 <i>shi</i>	2,250	13.5 (22.5)	3450
300 <i>shi</i>	2,000	12 (20)	2950
Equivalent to 300 <i>shi</i>	1,850	11.1 (18.5)	2650
200 <i>shi</i>	1,500	9 (15)	1950
Equivalent to 200 <i>shi</i>	1,350	8.1 (13.5)	1650
100 <i>shi</i>	800	4.8 (8)	550
Equivalent to 100 <i>shi</i>	Missing	Missing	
Officials whose salaries are in terms of <i>dou</i>	550	3.3 (5.5)	50
Accessory Clerks	400	2.4 (4)	- 250

<sup>43</sup> Bielenstein, Bureaucracy, 128, 131.

According to this salary and budget list, it is clear that there were very large earning differences among the officials. While the highest rank officials had 33,950 cash as monthly surplus from 17,500 coins and 105 *shi* of husked grain, the lowest officials had a 250 monthly deficit from 400 coins and 2.4 *shi* of husked grain. From this comparison, we can imagine why officials in the middle and low ranks could not become wealthy.

According to Li Kui, a farmer owning a small 100 *mu* plot of land had an annual yield of 150-*shi* of unhusked grains from his own farm. Even if we consider that farmers did not always have a good harvest and that they were subject to all kinds of government taxes, we can assume that the income of the lowest two officials, who annually had 96 *shi* (8 *shi* a month) and 132 *shi* (11 *shi* a month), was much less than the income of a small landowner. (see table 5) Therefore, it is obvious that some of the officials in the low ranks suffered from poverty.

From the essay of *Zhenglun*, we can find that even middle-level officials complained about their salaries.<sup>44</sup> Around 150 A.D., one official, Cui Shi 崔是, who earned 20 *shi* of unhusked grain and 2,000 cash a month, wrote that he was suffering from his low salary. According to the list of salaries (table 6), Cui Shi was at the time a middle-level official of the rank of 300 *shi*, probably a district magistrate. He described that he had to pay 1,000 cash to hire one retainer, 500 cash to buy fodder for horses, oil for cooking or lamps, pork, 500 cash to buy firewood, coal, salt and vegetables (or salted vegetables). Also, he said that 6 *shi* of grains (millet) were needed to feed two adults for a month and the rest of the grain was used for horses. He says that he does not have money to buy clothes and wine, to perform religious rites, and that he even cannot buy food, so he might starve to death. Actually, however, he died poor because

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<sup>44</sup> Yan, Kejun, ed., *Quan shangu sandai Qin Han Sanguo Liuchao wen* (Beijing: Zhonghua Shuju, 1965), juan 46, volume 1, 9.

he spent all his money on his father's luxurious funeral.<sup>45</sup> Even though his essay is obviously exaggerated, his complaint seems reasonable when we consider that he only had 2,950 cash as surplus. It shows that even the officials in the middle ranks could have trouble because of a low salary during the Han period.

However, the officials who occupied high ranks were able to become wealthy with their salary and additional income. Emperors customarily made grants such as cash, silk and food to metropolitan officials on three annual occasions: the New Year, Beginning of Spring and the La festival. Sometimes these gifts from the Emperor comprised a very large portion of an official's income. For example, for a minister of ranking Fully 2,000 *shi*, the total annual value of the gifts in cash and silk alone could be 115,000 coins.<sup>46</sup> Also, it was not unusual that the emperor gave several hundred or even a thousand *mu* of land and a thousand catties of gold to high officials. In 180 B.C., by the Empress Dowager's testamentary edict, a thousand catties of gold was given to nobles and high officials.<sup>47</sup> For these reasons, high officials usually became wealthy and enjoyed a luxurious life.

As economic status varied among the Han officials, the dietary condition and food access also varied according to their economic condition. It is thought that some of the high officials who had huge salaries and additional incomes could possibly have access to the kind of food enjoyed by nobles, while some of the middle- to low-level officials could not.

The bamboo slips recording chicken consumption uncovered from the *Xianquan* 懸泉 site at *Dunhuang*<sup>48</sup> give us some clue about the dining habits of some officials during the middle Han

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<sup>45</sup> Hsu, *Han Agriculture*, 59.

<sup>46</sup> Bielenstein, *Bureaucracy*, 127.

<sup>47</sup> Ban, Gu. *The History of the Former Han Dynasty*, Translated by Homer Dubs, (Blatimore: Waverly press, 1938) vol.1.201.

<sup>48</sup> Ho, Pingsheng. *Dunhuang Xianquan Hanjian Shicui* 敦煌懸泉漢簡釋粹 (Shanghai: Shanghai guji chu ban she, 2001)



period (table 7). These bamboo slips show how many chickens were acquired and served to each official who visited *Xianquan* County in *Dunhuang* during 62 B.C.<sup>49</sup> This registration, which was written and submitted by the Kitchen Supervisor<sup>50</sup>, also includes how much money the *yamen* spent for buying chickens.

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<sup>49</sup> This is the record from January to December 14th in the 4<sup>th</sup> year of *Yuankang* (元康四年).

<sup>50</sup> *Chu Se* 廚嗇

**Table 7. Registration of chicken's expenditure and acquisition in *Xian quan, Dun huang* in 62 B.C.<sup>51</sup>**

<b>Strip Number</b>	<b>Documents illustrated</b>
113	Expended one brace of chicken for one meal for Senior Scribe in the east hall.
114	Expended one brace of chicken for two meals for Attendant of Messenger Wang staying over night in the east hall.
115	Expended two braces of chickens for four meals for Clerk of the Superintendent of Agriculture Tien during the round trip in the east hall.
116	Expended one brace of chicken for two meals for Clerk of the Counselor-in-chief Fan during the round trip in the east hall.
117	Expended two braces of chickens for two meals for Senior Scribe during the round trip in the east hall.
118	Expended one chicken for one meal for Palace Physician Wan Qiu in the east hall.
119	Expended one brace of chicken for one meal for Attendant Official of Regional-inspector and one Retainer clerk of the Regional-inspector in the east hall.
120	Expended one brace of chicken for two meals for the Clerk of the Superintendent of Agriculture Feng during the round trip in the east hall.
121	Expended one chicken for one meal for the Messenger Mr. Wang in the east hall.
122	Acquired two braces of chickens on October 27th. Assistant Zhang Fu received from the court.
123	Acquired one brace of chicken on October 10th. Kitchen Supervisor Mr. Shi received from the Clerk of the Wu Qiong neighborhood.
124	Acquired one brace of chicken on December 9th. Kitchen Supervisor Mr. Shi received when he met the Assistant of the Yu Li Township.
125	From October 12th to December 14th stored three braces of chickens buying myself with 240 coins. The County supplied 80 braces of chickens.
126	• Registration of chicken's expenditure and acquisition in Xian Quan County from October to December 14th.
127	No chicken in September
128	No chicken at present
129	• In sum, 40 braces of chickens. From January to December 14th, we received 28 braces of chickens from the county. From January to December 14th, we paid 1215 coins to buy 31 chickens by ourselves
130	• Registration of chicken's expenditure and acquisition in Xian Quan County from January to December 14th in 62 B.C.
131	In December 15th, Xian Quan Kitchen Supervisor dare to speak that I sincerely transmit a volume of chicken registration from January to December 14th. I dare to speak.

<sup>51</sup> Translation of Ho, *Dunhuang Xianquan*, 77~80.

From this record of chicken registration, I created table 8, which shows the consumer's official position, the number of the meals and the number of chickens they had in this court. Also, due to the research of Bielenstein and Hucker,<sup>52</sup> I was able to find the ranks of the officials. They ranged widely in the mid to low ranks from 100 *shi* to 1,000 *shi*. However, regardless of their rank, they were equally served with one chicken per meal, except the Senior Scribe on slip no.113, who consumed two chickens at a meal.

**Table 8. Chicken Expenditure**<sup>53</sup>

slip no.	Consumer	no. of person	no. of chickens	no. of meals	no. of chicken /person, meal	Rank ( <i>shi</i> )
113	長史君 Senior Scribe	1	2	1	2	1,000 <sup>54</sup>
114	使者王君 Messenger Wang	1	2	2	1	
115	大司農卒史田卿 Clerk of the Superintendent of Agriculture Tian	1	4	4	1	100 <sup>55</sup>
116	丞相史范卿 Clerk of the Counselor-in-chief Fan	1	2	2	1	1,000 <sup>56</sup>
117	長史君 Senior Scribe	1	4	4	1	1,000 <sup>57</sup>
118	太醫萬秋 Palace Physician Wan Qiu	1	1	1	1	600 <sup>58</sup>
119	刺史, Attendant Official of Regional-inspector, 從事史一人 One Retainer clerk of the Regional-inspector	2	2	1	1	600 <sup>59</sup> 100 <sup>60</sup>
120	大司農卒史馮卿 Clerk of the Superintendent of Agriculture Feng	1	2	2	1	100 <sup>61</sup>
121	使者王君 Messenger Mr.Wang	1	1	1	1	

<sup>52</sup> Charles Hucker. *A dictionary of official titles in imperial China*, (California: Stanford University Press, 1985)

<sup>53</sup> This chart is based on the record of Dunhuang bamboo slip in Ho, *Dunhuang Xianquan*, 77-80.

<sup>54</sup> Hucker, *Official titles*, 112., Bielenstein, *Bureaucracy*, 11.

<sup>55</sup> Hucker, *Official titles*, 528.

<sup>56</sup> Bielenstein, *Bureaucracy*, 8.

<sup>57</sup> Hucker, *Official titles*, 112., Bielenstein, *Bureaucracy*, 11.

<sup>58</sup> Bielenstein, *Bureaucracy*, 60.

<sup>59</sup> Bielenstein, *Bureaucracy*, 90.

<sup>60</sup> Bielenstein, *Bureaucracy*, 92.

<sup>61</sup> Hucker, *Official titles*, 528.

Other useful information recorded on these bamboo slips includes the price of chickens in the *Dunhuang* area in B.C.62. Slip no. 125 says, “the court bought three braces of chickens with 240 coins (*qian*, 錢).” and slip no.129 says, “he paid 1,215 coins to buy 31 chickens.” With this data we can figure out that a chicken in the *Dunhuang* area cost 39~40 coins at that time. This is much cheaper than the chicken price of 70 coins given in the *Jiuzhang suanshu*. However, this chicken price is still expensive when we compare it to the price of grains. When we assume the price of grain was over 100 coins per one *shi*, 40 coins per chicken is much more expensive than the 100 coins for one *shi* of grain, which could sustain an adult over ten days.

If we remember that most of the officials who visited the yamen at *Dunhuang* and consumed chickens were in the level of middle to low rank, ranging from 100 *shi* to 1,000 *shi*, it could be said that some of them, such as officials of the 100 *shi*, had much better meals on their business trip than at home. If there were other dishes besides the chicken, it is certain that these officials had a very good, perhaps even a superabundance of food compared to their ordinary meals.

Occasionally, officials as well as nobles got food resources as grants from the Emperor. The bamboo slips founded from *Zhangjiashan* 張家山 show the normative articles and amount of grants according to rank. This includes not only silk but also abundant food resources such as grain, meat, wine and even condiments.<sup>62</sup> It shows that even the lower officials could occasionally enjoy luxurious food resources due to the grants from the Emperor.

During the Han period, access to food resources was as varied among the officials as their salaries. While some officials in high ranks were able to enjoy abundant food resources due to their wealth, some officials in mid-low position, such as Cui Shi, could not afford to buy enough

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<sup>62</sup> *Zhangjiashan Han mu zhujian*. (Beijing:Wenwu chu ban she, 2001), 172~174.

food resources and fulfill social obligations because of their small salaries. However, it seems that sometimes even the officials in low ranks could have good food resources when they were treated in court or when they received grants of foodstuffs from the Emperor.

## 5. PEASANTS

In Han society, most people were considered “commoners” (*liang ren* 良人, *shu min* 庶民), which was different from the two higher classes, the nobility and the officials, and the two lower groups, convicts and slaves. Commoners were one of the ruled classes, and were divided into four occupational groups: the scholars (*shi* 士), the farmers (*nong* 農), the artisans (*gong* 工) and the merchants (*shang* 商). They supported the state and upper classes with their taxes, corvée labor and industry.

Theoretically, farmers were regarded as an important class in Chinese society because of their agricultural products. Agriculture was considered the fundamental pursuit (*ben* 本, literally ‘the root’) in the society, and farmers had social and legal status superior to merchants and artisans. As a result, there were no special sumptuary laws against the farmers as there was against the merchants. If the farmer received the title of “diligent farmer” (*li tian* 力田) from the government, he was exempted from corvée for life and sometimes was given land or silk as a reward.<sup>63</sup> Also, farmers were legally permitted to enter officialdom by recommendation, unlike the merchants. For example, the famous scholar *Zheng Xuan*, who did some farming, was recommended and finally appointed to high official posts such as the Minister of Agriculture.<sup>64</sup>

However, the social status of farmers, in fact, was relatively low compared to the wealthier merchants, who enjoyed material comfort. Most farmers, especially peasants, were illiterate because of poverty and the lack of leisure time to study. Even though there were a few

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<sup>63</sup> Ch’ü, *Social Structure*, 111.

<sup>64</sup> Ch’ü, *Social Structure*, 112.

farmers who became high officials and wealthy landowners, most farmers were peasants who had a small amount of land consisting of around 100 *mu* 畝 or less which was tilled with family members.<sup>65</sup> Among the farmers, there were tenant farmers who rented land and paid landowners 50 % of their yield, and farm wage laborers who worked on the farms of others.<sup>66</sup> They were poorly regarded by society because of their poverty and illiteracy.

A Han farming household had to pay property, land, and poll taxes and take on corvée duties.<sup>67</sup> The property tax was 127 cash per one *suan* unit, which was 10,000 cash worth of property. For example, if a household had one residence, 70 *mu* of land, two oxen and two ox carts, which were equal to 20,000 cash, the household had to pay 254 cash as the property tax.<sup>68</sup> The land tax was in kind, and was one fifteenth to one thirtieth of the annual yield. Also, the average adult commoner paid a poll tax of 120 cash annually. If the households were in a marquisate or principedom, commoners paid the lord 200 cash instead of the poll tax.<sup>69</sup> Furthermore, males from 15 to 56 years were subject to several forced labor or corvée duties such as labor for construction and military duty for one month per year. If they wanted to avoid these duties, a man could pay 2,000 cash (some say 300 cash) to hire substitutes for the duty.

Therefore, it was hard for peasants to accumulate wealth. Even though the government sometimes provided peasants with seed-grain, tools and draught animals, sometimes on credit, and sometimes as outright gifts to increase the harvest, the economic condition of peasants was still poor. The Han scholars lamented in the *Discourses on Salt and Iron* that the farmer suffered from the combined blows delivered by famine and taxation.<sup>70</sup> For instance, it seems that even

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<sup>65</sup> Ch'ü, *Social Structure*, 109.

<sup>66</sup> Ch'ü, *Social Structure*, 110.

<sup>67</sup> Hsu, *Han Agriculture*, 72.

<sup>68</sup> Hsu, *Han Agriculture*, 76.

<sup>69</sup> Wilbur, *Slavery*, 33-34.

<sup>70</sup> Hsu, *Han Agriculture*, 73.

Gong Yü, who had 130 *mu* of land, could hardly support his family. According to the *Hanshu* 72, the wife and children of Gong Yü only had such food as husks and beans to eat, and they had to wear clothing made of coarse material.<sup>71</sup> Sometimes, when peasants had to pay exceptional taxes or needed some money for debts, they had to sell their land, their houses and even their wives and children.<sup>72</sup> For this reason, numerous peasants became tenant farmers or farm wage laborers or sometimes became fugitives.

It is certain that peasants were not able to have as many food resources as nobles or high officials. They depended on the crops and vegetables that they cultivated on their land by themselves. Therefore, their food resources could be limited to their farming resources and others bought with the surplus. Based on the historical records and Chinese literature, Hsu Cho-yun estimated that one household with five family members had to produce at least 140 *hu* 斛 (= *shi* 石) of grain for their food and surplus grains for taxes and cash for other expenditures in one year. When we consider that the total crop produced from 100 *mu* of land was not much more than 150 *shi*<sup>73</sup>, it is certain that 100 *mu* of land is not enough to accumulate surplus with which they could buy other food resources. Therefore, most peasants who had less than 100 *mu* of land could barely have enough food resources to survive.

If we compare the prices of commodities during the Han period (Table 1), we can recognize the difficulties of buying fish and meats such as chicken, rabbit and dog with their meager surplus. If they wanted to have one chicken and one rabbit, they had to sell one-*shi* of millet, which could be ten days of food for one man. Of course, there were other ways to get food resources: fishing and hunting. However, fishermen, hunters, and even food gatherers had to pay special taxes during the Han period. *Hanshu* 24 talks about the increasing sea taxes on the

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<sup>71</sup> Ban, Gu. *Hanshu*, 782.

<sup>72</sup> Ch'ü, *Social Structure*, 110.

<sup>73</sup> Ch'ü, *Social Structure*, 109.



ocean products.<sup>74</sup> During the reign of Huodi 和帝 (r.88~106), permission was periodically given to the poor to hunt, fish, or gather food on public land without charge when the peasants suffered from plagues of locusts and drought.<sup>75</sup> However, except for a special occasion, peasants did not have free access to these food resources.

From the historical records, we can find out the crops and vegetables that farmers commonly cultivated and consumed. The *Simin yueling* 四民月令, which Cui Shi 崔是 wrote in the second century A.D. to prescribe the method and timetable for seasonal activity of farming and marketing of the agricultural surplus, provides detailed information about the cereals and vegetables that farmers cultivated during the Han period.<sup>76</sup> This text mentions fruits and vegetables as well as several kinds of grains such as millet, soybean, wheat, rice, lesser beans and hemp.

The Han Chinese often talked about the “five grains”, “six grains”, “eight grains”, or “nine grains” as major categories.<sup>77</sup> Today, we do not know what these were. However, even though it is not certain exactly what grains were in these categories, we can make a list of the main grains which Han Chinese usually consumed, especially in the *Luo yang* area, through looking at the grain remains and records in tombs. These grains are almost the same as the grains that Cui Shi mentioned in the *Simin yueling*. Based on these archeological and historical records, Hayashi Minao concluded that the staple grains during the Han period were non-glutinous millet, glutinous millet, barley, rice, soybeans, red beans and flax seed.<sup>78</sup>

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<sup>74</sup> Swann, Nancy Lee. *Food and Money in Ancient China* (Princeton: Princeton University Press, 1950), 193.

<sup>75</sup> Patricia Ebrey. “The Economic and Social History of Later Han,” in *Cambridge History* vol.1 Edited by Denis Twitchett. (608-648. Cambridge: Cambridge University Press, 1986), 620.

<sup>76</sup> Hsu, *Han Agriculture*, 215~228.

<sup>77</sup> Chang, *Food in Chinese*, 71.

<sup>78</sup> Hayashi, Minao. “Kandai no inshoku.” *Tōhōgaku* 48(1975): 10.

Among these grains, Han China produced more millet than other grains.<sup>79</sup> Various kinds of millet had been the staple grain in North China since the Neolithic era. However, it seems that beans were cheaper than millet (see table 1), so people consumed beans as a substitute, because it was much cheaper than millet. Several historical records give evidence of this. According to *Hou Hanshu* 9, when there was a great famine in the vicinity of the capital, prices for grains went sky-high: 500,000 coins for one *hu* of husked millet while only 200,000 coins for one *hu* of beans or wheat.<sup>80</sup> Also, as Ban Gu pointed out in *Hanshu* 91, the poor only had soybeans to chew and water to drink.<sup>81</sup> From these historical records, we can infer that beans or soybeans were considered inferior to other grains, and poor commoners broadly used them.

However, as you can see in Table 9, soybeans have much more protein than other grains, even more than pork and beef. On a dry weight basis the soybean contains approximately 40% protein, 20% oil, 20-30% carbohydrate, 3-6% fiber and 3-6% minerals.<sup>82</sup> Despite being considered an inferior substitute for grain, soybeans played a very important nutritional role, providing people with a significant high-quality protein. Moreover, cheap and nutritious soybean food could be the crucial protein resource for peasants who could rarely consume meat because of its high price. It is clear that soybeans were a good protein resource for commoners.

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<sup>79</sup> Chang, *Food in Chinese*, 73.

<sup>80</sup> Fan, Ye. *Hou Hanshu* (Beijing : Zhonghua shu ju, 1997), 115.

<sup>81</sup> Swann, *Food and Money*, 419., Ban Gu, *Hanshu*, 935.

<sup>82</sup> Sylvan et al. *Feeding a Billion: Frontiers of the Chinese Agriculture* (East Lansing: Michigan State University Press, 1987), 188.

**Table 9. Protein Content of Food**<sup>83</sup>

<b>Food</b>	<b>Proteins/ 100 cal (g)</b>	<b>Food</b>	<b>Proteins/ 100 cal (g)</b>
Beef (thin)	9.6	Sorghum ( <i>Sorghum vulgare</i> )	2.9
Pork	2.6	Maize, whole meal	2.6
Fish, fresh, fatty	11.4	Rice, home pounded	2.0
Milk, whole, fluid, 3.5% fat	5.4	Rice, milled white	1.7
Milk, skim, dried	10.0	Taro ( <i>Colocasia esculentum</i> )	1.7
Wheat flour, medium extraction	3.3	Sweet potatoes	1.1
Millet ( <i>Eleusine corakana</i> )	2.0	Beans and Peas, different species	6.4
Millet ( <i>Setaria italica</i> )	2.9	<b>Soybeans, whole seeds, dry</b>	<b>11.3</b>
Millet ( <i>Pennisetum glaucum</i> )	3.4		

However, eating too many soybeans could be hazardous to one's health. The *Bowu zhi* 博物志, A.D. 190, warns that after eating soybeans for three years, the abdomen would feel heavy and one's movement would be impaired.<sup>84</sup> H.T. Huang explains the problems with soybeans using his scientific knowledge.<sup>85</sup> Scientifically, even though soybeans are boiled, when we eat soybeans, the carbohydrates are converted into two kinds of glucoses: stachios and raffinose. And then, certain bacteria in the large intestine decompose these glucoses. This process causes

<sup>83</sup> Chang, *Food in Chinese*, 314.

<sup>84</sup> Zhang, Hua. Translated by Roger Greatrex. *The Bowu zhi :an annotated translation*. (Stockholm : Föreningen för Orientaliska Studier, 1987), 121.

<sup>85</sup> Huang, H. T. *Science and Civilisation in China: Biology and Biological Technology: Fermentation and Food Science* (Cambridge: Cambridge University Press, 2000), 295.

flatulence, so those who eat soybean feel much discomfort in their abdomen. This was probably the reason why people considered soybean an inferior grain.

However, during the Han period, several soybean-fermented foods, which solved these problems of the ill effects and tastelessness, were widely used. Chinese commoners started to use the fermented soybean condiment such as *shi* 豉 (salted, darkened beans), *dou chang* 豆醬 and *chang yu* or *shi yu* during the Han period. When soybean fermentation was discovered and how much people could consume is not known, but fermented soybeans had already become a basic condiment by the early Han. For instance, ‘thousands of jars of saccharifying mould ferment and salty fermented soybeans’ were referred to as articles of commerce in *Shiji* 129.<sup>86</sup> The salted soybean condiment (*shi*) is also among the food stored in pottery jars and listed in the bamboo slips discovered in Han tomb No.1 at *Mawangdui*. There are no references to *shi* in the Qin (B.C.221-B.C.207) literature, but *Hanshu* 91 relates that two of the seven wealthiest merchants of the realm had accumulated their fortunes by trading in *shi*.<sup>87</sup> Also, in many parts of the *Simin yueling*, Cui Shi wrote about the soybean and preserved soybean food. This is because he was involved in selling wine and preserved products. However, all these records show that soybeans and preserved soybean food were broadly consumed in Han society. There is no doubt that by late Western Han, preserved soybean products such as *shi* had become a major commodity in the economy and food culture of the realm.

Moreover, the tomb relief in *Dahuting* in *Mi* County Henan (see figure 6) gives the clue that the Han peasants could have another good protein source. It can be argued that this tomb relief shows the process of making *doufu*, and the Han people may have already had *doufu* during the Han period. Even though this tomb relief belonged to the upper class, H.T. Huang’s

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<sup>86</sup> Sima, Qian. *Shiji* (Beijing : Zhonghua shu ju, 1997), 828.

<sup>87</sup> Ban, Gu. *Hanshu*, 938.

research suggests that it is possible that commoners also enjoyed *doufu* during the Han period. However, we need more specific evidence about commoners' *doufu* from historical records or archaeological data to confirm its contribution to commoners' dietary condition.



**Figure 6. Han tomb relief of the making of *doufu* in Dahuting, Mi xian, Henan<sup>88</sup>**

While the Han Chinese could turn the soybean into palatable and attractive foods to use in their daily life as an inexpensive source for protein, it seems that the development of commerce during the Han period also helped these food products to be used broadly. During the Han period, most peasants could not gain enough meat and grains, but they could consume inexpensive and high quality protein through soybean products. The soybean products might have been the main source of protein for poor peasants who could not consume meat as frequently as the upper classes.

<sup>88</sup> Photograph and drawing by H. T. Huang, from Huang, *Science in China*, 306.

However, even though the Han peasants could get good protein from soybean products, they could not easily survive because of natural disasters. According to Hsu Cho-yun's research, there were forty-three droughts, sixty-eight floods and thirty-seven famines caused by locusts and other insects during the Han period.<sup>89</sup> Also, they suffered from droughts once every sixth year in early Han.<sup>90</sup> Therefore, peasants frequently suffered from starvation. Sometimes, to get food, they not only sold their rank, children and even wife, but also practiced cannibalism. *Hanshu* mentions several incidents of cannibalism caused by starvation in mid-east China. For example, it is written that "in spring at the third year of Emperor Wu (B.C.138), because of the flood and drought, people ate each other."<sup>91</sup>

Overall, during the Han period, the food resources of peasants were not enough because they mostly depended on their yield from a small amount of land. Also, the frequent natural disasters made them suffer from starvation. Even though they had a good harvest, the price of meat was very high compared with grains and vegetables, so it was impossible for peasants to enjoy meat frequently. It seems that the Han peasants presumably benefited by the soybean products, but more research is needed to confirm the contribution of soybean products to the dietary condition of peasants in this period.

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<sup>89</sup> Hsu, *Han Agriculture*, 80.

<sup>90</sup> Hsu, *Han Agriculture*, 103.

<sup>91</sup> Ban, Gu. *Hanshu* 6, 49.

## 6. SOLDIERS

The armies of the Han dynasty consisted of conscripts, volunteers, and convicts. Among them, conscripts who were called from the commanderies and pryncedoms of the Han Empire formed the greater part of the force, so they were the most important elements for the military power of the Han government.

In general, during the Han period, males between the ages of twenty-three and fifty-six were required to serve for two years in the army as conscript soldiers (*zu* 卒), but between 155 B.C. and some point during the reign of Emperor Zhao (87-74 B.C.) they were required to serve between the ages of twenty and fifty-six. This conscription was required of all able-bodied males except those of rank nine or higher. Also, it seems that some of the men were able to hire and pay 300 cash or 2,000 cash each month for substitutes to serve on their duty.<sup>92</sup> Which amount is the correct one is still controversial. Usually, they spent one year under training in their home commanderies as infantry (*cai guan* 材官, skilled soldiers). Then, they served another one year as garrison conscripts (*shu zu* 戍卒) or cavalry (*qi shi* 騎士), either as guards under the commandant of the palace guards in the capital or at the courts of princes, or as troops in the commanderies and at the frontier inside China.<sup>93</sup> Their main tasks were to man the watchtowers of the wall, observe enemy activity, signal information along the line, and resist intruders with bows and arrow, spear and shield. They also took charge of checking travelers. Among them, some were assigned to agricultural duties as farming soldiers (*tian zu* 田卒) or irrigation soldiers

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<sup>92</sup> Loewe, 2002. *Han administration*, 81.

<sup>93</sup> Bielenstein, Hans. "The Institution of Latter Han," in *The Cambridge History of China*. vol.1, Edited by Denis Twitchett. (491-519. Cambridge: Cambridge University Press, 1986), 512.

(*he qu zu* 河渠卒).<sup>94</sup> In addition to the completion of the two-year military duty, they were liable to recall in times of emergency before the discharge age of fifty-six.

It is impossible to estimate the potential strength of the Han conscript army with accuracy.<sup>95</sup> According to the *Cambridge History of China*, the total number of men available for call-up may be estimated at between 300,000 and 1,000,000, but this book also mentions it is certain that no Han government was ever able to draft, train, and supply the full potential.<sup>96</sup>

In addition to the conscripts, there were also convicts and volunteers in the army. Evidence shows that some convicts who had benefited from an amnesty were serving at the northwest frontier.<sup>97</sup> Volunteers who held noble rank and who were thus not liable to conscription usually served in the cavalry. However, it seems that those convicts and volunteers were far fewer than the conscripts. Besides them, there were officers who were designated by the central government to take command of troops or to lead an expedition such as Colonels (*xiao wei* 校尉) with the rank of Equivalent to 2,000 *shi* and Generals (*chiang jun* 將軍). Also, the lesser officials who belong to the local administration worked for the military.

Han documents on bamboo slips that were excavated from the *Juyan* and *Dunhuang* areas show detailed information on troops stationed along the northwestern frontier of China. Even though there were a few volunteers and convicts, it seems that most soldiers who manned the posts in the *Dunhuang* and *Juyan* districts were conscripts. They marched from their farmland homes, escorted by officers to the northwestern frontier, which could have harsh conditions.<sup>98</sup> The conscripts usually served for one year in this area. However, it seems that

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<sup>94</sup> Yang, Lien-sheng. "Notes on Dr. Swann's Food and Money in Ancient China". *Harvard Journal of Asiatic Studies*, vol.13, no.3/4. (Dec 1950), 549.

<sup>95</sup> Loewe, Michael. *Everyday Life in Early Imperial China*. (New York: Dorset Press. 1968), 75.

<sup>96</sup> Loewe, 1986. "Structure and Practice", 478.

<sup>97</sup> Loewe, 1986. "Structure and Practice", 480.

<sup>98</sup> Loewe 2002, *Han administration*, vol.1, 91~92.



certain officials or officers served living with their families in the northwest for period of several years.<sup>99</sup>

Officers and soldiers received food, clothing, and weapons from the government. Officers and their assistants additionally received salaries of a few hundred cash a month.<sup>100</sup> Grain was also distributed from official sources to any of their family members living together with them in this area. However, conscript soldiers received basic rations of food, clothing, and equipment, but they did not receive salaries.<sup>101</sup>

The Han service conserved its property very carefully, so they recorded the issue of certain items in detail. Among them, the records concerning rations of staple foods give us detailed information. The rations varied according to the status (service man, civilian, convicts), gender, and age of the individual, and the type of grain that was being distributed. For example, officers and guardsmen received the highest, 3.33 *shi* in unhusked grain a month, and the youngest group of female infants the lowest quantities, 1.16 *shi*.<sup>102</sup> According to Yang Lien-sheng's research, the officers and soldiers regularly guarding the watchtowers received 3.33 *shi* of unhusked grain whereas convicts, soldiers working on agricultural colonies, and officers and soldiers who served on the frontier for a short period received 3 *shi* of unhusked grain in a month. For the family members, adult males aged from 15 to 67 received 3.33 *shi*, adult females and serviceable (aged 7~14) males received 2.16 *shi*, serviceable females and pre-service (aged 2~6) males received 1.66 *shi*, and pre-service females received 1.16 *shi* of unhusked grain in one month (see table 10.).<sup>103</sup> A small ration of salt was also distributed to men.

The amounts of distributed grain, which varied according to job position, working period,

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<sup>99</sup> Loewe 2002, *Han administration*, vol.1, 82.

<sup>100</sup> Yang, "Notes on Dr. Swann's," 549.

<sup>101</sup> Loewe. 1968, *Everyday Life*, 76.

<sup>102</sup> Loewe. 1968, *Everyday Life*, 94.

<sup>103</sup> Yang, "Notes on Dr. Swann's," 550. , Loewe, 2002. *Han administration*, vol. 2, 68.

gender and age, were enough amounts for soldiers to survive even though it could not give great surplus. If we calculate the distributed amount for one family consisting of an old woman, a grown man, a grown woman, an older child, and a younger child, it shows that one family could have at least more than 11 *shi* of unhusked grain per month. This amount is more than monthly-consumed amount of one family, which was assumed by Eberhard to be 10.5 *shi* of unhusked grain.

**Table 10. Distributed amount of grains for soldiers and family**

	<b>Job position and Age</b>	<b>Amount of grain (<i>shi</i>)</b>
<b>Soldiers</b>	guarding the watchtowers	3.33
	working on agricultural colonies	3
	serving on the frontier for short period	
<b>Families</b>	<i>Da</i> 大 adult male (15~67)	3.3
	adult female	2.16
	<i>Shi</i> 使 serviceable male (7~14)	
	serviceable female	1.66
	<i>Wei shi</i> 未使 pre-service male (2~6)	
	pre-service female	

In addition to the grains, officers and their assistants additionally received salaries of a few hundred cash a month. Their salaries varied from 3,000 cash to 360 cash according to their

titles.<sup>104</sup> According to the records from the *Juyan* and *Dunhuang* area, the payment was sometimes made in textiles with equivalent values.<sup>105</sup> Table 11 shows the military official's title and their monthly payment in northwest frontier.

**Table 11. Official titles and monthly payment in Han military**<sup>106</sup>

Official's Title		Monthly Payment (coin)
Hou 候	Company commander	3000
Hou chang 候長	Platoon commander	1200 / 1600 / 1800
Sui chang 隧長	Section commander	900
Sai wei 塞尉	Deputy company commander	2000
Shi li 士吏	Officer serving in a company	1200
Wei shi 尉史	Civil official in a company	600
Shu zuo 書佐	Junior civil official in a commandant's headquarters	360
Ling shi 令史	Civil official in a company	480
Hou shi 候史	Civil official in a platoon	900

<sup>104</sup> Loewe 2002, *Han administration*, vol.1, 96.

<sup>105</sup> Loewe 2002, *Han administration*, vol.1, 96.

<sup>106</sup> Loewe 2002, *Han administration*, vol.1, 96.

**Table 12. Salary list for official<sup>107</sup>**

<b>Rank</b>	<b>Monthly salary in cash (coin)</b>	<b>Monthly salary in husked grain (unhusked grain) (<i>shi</i>)</b>
10,000 <i>shi</i>	17,500	105 (175)
Fully 2,000 <i>shi</i>	9,000	54 (90)
2,000 <i>shi</i>	6,000	36 (60)
Equivalent to 2,000 <i>shi</i>	5,000	30 (50)
1,000 <i>shi</i>	4,500	27 (45)
Equivalent to 1,000 <i>shi</i>	4,000	24 (40)
600 <i>shi</i>	3,500	21 (35)
Equivalent to 600 <i>shi</i>	3,000	18 (30)
400 <i>shi</i>	2,500	15 (25)
Equivalent to 400 <i>shi</i>	2,250	13.5 (22.5)
300 <i>shi</i>	2,000	12 (20)
Equivalent to 300 <i>shi</i>	1,850	11.1 (18.5)
200 <i>shi</i>	1,500	9 (15)
Equivalent to 200 <i>shi</i>	1,350	8.1 (13.5)
100 <i>shi</i>	800	4.8 (8)
Equivalent to 100 <i>shi</i>	Missing	Missing
Officials whose salaries are in terms of <i>Dou</i>	550	3.3 (5.5)
Accessory Clerks	400	2.4 (4)

If we apply the military official's salary to the salary list of officials (Table 12.), the official *hou* 候 the Company commander, who had the highest salary in the army had a salary equal to the official of 300 *shi*. Even though the rank of 300 *shi* received 2,000 cash and 20 *shi* of unhusked grain, if he subtracted the amount of his family's average consumption 10.5 *shi* from 20 *shi* and sold the remaining grain of 9.5 *shi* at the rate of 100 cash per *shi*, he finally had about 2,950 cash. This comparison shows that the military officials occupied a mid to low position, the official rank of 100 *shi* to 300 *shi* (see table 6). Even though it was impossible for them to consume meat frequently like high officials and nobles, they did not have problems in food

<sup>107</sup> Bielenstein, *Bureaucracy*, 131.

consumption because they all received an appropriate amount of grain, 3 or 3.3 *shi* a month for an adult, in addition to the cash.

Also, it seems that conscript soldiers in the northwest frontier did not starve like convicts and poor peasants during the Han period. They were in good condition with respect to food consumption if they received the exact amount of grain that the records say. Some soldiers who were poor peasants presumably had a much better dietary condition while they served in the army as conscript soldiers than they did at home.

However, the food distribution and consumption of soldiers during campaigns were a little bit different from those of the stationary troops at the northwest border. For example, during the campaign against the Xiongnu in 121 B.C., one soldier consumed 360 liters of dried rice for a three hundred day's journey<sup>108</sup>, which means 1.2 liters (6 *sheng* 升) a day or 1.8 *shi* a month. This was only the three-fifths amount of the normal amount. Another record also shows soldier's food consumption in an extremely difficult situation. In 99 B.C., general Li Ling distributed each soldier only 2 *sheng* (= 0.2 *dou*, 0.4 liters) of dried grain and a piece of ice to sustain them for three days when they were surrounded by the Xiongnu.<sup>109</sup> This was the one-fifths of the normal amount.

During the Han period, soldiers in the northwest frontier could have enough food resources from the distributed grains and salaries when they were stationed at a military base. However, when they were campaigning against the Xiongnu, their food accessibility was very limited. Basically, they were only allowed to consume a small amount of dried grain during an emergency situation.

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<sup>108</sup> Yü, Ying-shih. "Han Foreign Relations," in *The Cambridge History of China*. vol.1, Edited by Denis Twitchett. (377-462. Cambridge: Cambridge University Press, 1986), 390.

<sup>109</sup> Ban, Gu. *Hanshu*, 627.

## 7. CONVICTS

In Han society, there were two large groups lower in status than the commoners: “convicts” *tu* 徒 and “slaves” *nubei* 奴婢. Sometimes these two groups are mentioned together in the historical records, but they were different in several respects. Convicts were those who were sentenced to servitude for a definite period of time, whereas slaves were those who served for life. Usually, convicts were sentenced to hard labor for one to six years. They were treated very similarly to government slaves during their sentence, but they were freed and became commoners when the term was completed.

There were several groups of convict laborers, categorized according to their penalty. Dr. Anthony Barbieri-Low’s research tells about the crimes and sentences in detail<sup>110</sup>. The heaviest of the hard labor punishments was that of the “Tattooed Wall-Dawn”, *Qing chengdan* 黥城旦, or, for women, “Grain Pounder”, *Qing chong* 黥舂. They were sentenced to five to six years. The next group was the “Intact Wall-Dawn” *Wan chengdan* 完城旦, or, for women, “Intact Grain Pounder” *Wan chong* 完舂. They served four years. All these groups, which are mentioned above, could also be shaved, tattooed or mutilated. The next group of hard labor convicts were sentenced for three years as the “Gatherers of Fire wood for the Sprits”, *guixin* 鬼薪, and their female counterparts, the “Sifters of White Grain”, *baican* 白粲. One degree lower again were the “Shaved Bondservants” and “Shaved bondwomen”, *Nai li chen* 耐隸臣 and *Nai li qie* 耐隸妾 for three years. “Shaved Robber-Guard” *Nai sikou* 耐司寇 for female and “Work like Robber-

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<sup>110</sup> Barbieri-Low, “The Un-Free Artisan”, in *Artisans in Early Imperial China*, unpublished manuscript.

Guard” *Zuo ru sikou* 作如寇 were the next group to be sentenced for two years. The last two groups were the “Forced Labor” *Fu zuo* 復作 for both male and female who worked three months to one year and the “Frontier Labor Fine” *Shu fazuo* 戍罰作 sentence of one month to one year for males.

These titles, like “Gatherers of Fire wood”, had already become meaningless during the Han period. Except a few amnestied convicts who joined the frontier defense force, convicts of all grades often worked together inside China on public work projects or in factories for the state. For example, hard laborer convicts worked building roads, digging canals, preparing imperial tombs, building the Great Wall, transporting army provisions as well as toiling in state mines or in government iron bureaus.<sup>111</sup> Female convicts also could be condemned to hard labor, but their tasks were different - to hull and sift grain. In *Slavery in the Former Han Dynasty*, Martin Wilbur describes the historical records concerning the work of convicts:

“In 192 B.C., 20,000 criminals and servitors sent from the states of king and marquises worked with corvée laborers to build the city wall of *Chang’an* 長安 and in B.C. 75 convicts, mobilized in various commanderies, built walls in Manchuria and Korea. Before 32 B.C. convicts in the imperial prison at *Shang lin* 上林, the largest imperial park, cared for game and worked on palaces and lodges. Gong Yü also mentioned convicts who were mining cooper and iron from the mountains as well as who were employed in casting iron implements in the government monopoly.”<sup>112</sup>

Even though convicts were guaranteed to be free after the sentenced period, however, they were not superior in status to slaves at all. It seems that convicts were treated as men who deserved to die. Usually, they had to work clad in felons’ dress, often shackled and with shaven

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<sup>111</sup> Hulsewe, A.F.P. “Ch’in and Han Law,” in *The Cambridge History of China*. vol.1, Edited by Denis Twitchett. (520-544. Cambridge: Cambridge University Press, 1986), 533.

<sup>112</sup> Wilbur, *Slavery*, 224.

heads, sometimes even tattooed on the face or shoulder.<sup>113</sup> The convict laborer graves near *Luo yang* 洛陽 that have thousands of bodies still wearing collars and leg fetters, show that many convicts died during their labor.<sup>114</sup> Also, before 167 B.C. their nose, left foot or both feet could be amputated. Emperor *Wen* 文帝 substituted these physical mutilations with severe additional beatings and the use of fetters, but this reform unintentionally brought more death as a result of the severe beating.

The punishments of convicts during the early Han period was a system inherited from the Qin, so we can extrapolate the dietary condition of convicts during Han dynasty by looking at the Qin and Han law codes together. According to the Qin and early Han law, the ration of grain for convicts was gauged according to the gender and the work in which they were engaged. The Qin and Han codes stipulated a ration of grain, and distributed it to convict laborers twice a day. “Wall builders” *cheng dan* received a grain ration of half a *dou* 斗 in the morning and one third of a *dou* in the evening, and “grain pounders” *chong* and females who were engaged in construction work were fed one third of a *dou* at both meals. Also, to those who were engaged in normal work, they were distributed two thirds of a *dou* for males and half of a *dou* for females a day<sup>115</sup> (see table 13). When we compare their monthly amounts to the average amount required for ordinary adult males, which was 3 *shi* of grain a month, we can recognize that the dietary conditions of convicts were highly inferior.

However, the normative amount of grain for the Han convicts seems to be relatively more than that for Egyptian female slaves, who were in the lowest social status during the Late New Kingdom in Egypt (B.C. 11-13c). For example, a female slave in ancient Egypt received from

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<sup>113</sup> Wilbur, *Slavery*, 41.

<sup>114</sup> Barbieri-Low, unpublished manuscript.

<sup>115</sup> Hulswé, A.F.P. *Remnants of Ch'in Law*. (Netherlands: Leiden E.J.Brill. 1985), 32-33.



1/4 to 1/2 *khar* of barley for beer and emmer wheat for bread per month.<sup>116</sup> One *khar* is equal to 76.8 liters.<sup>117</sup> It means that each female slave in ancient Egypt had from 19.2 liters to 38.4 liters of grain per month. These amounts were a little bit smaller than those for the Han female convicts, which were 29.97 liters (=1.5 *shi*) or 39.96 liters (=2 *shi*) of grain per month.

**Table 13. Convicted labor’s millet (unhulled) consumed amount**<sup>118</sup>

Labor convicts	Heavy work ration		Normal ration	
	P/day	P/month	P/day	P/month
Men	5/6 <i>dou</i>	2 1/2 <i>shi</i>	2/3 <i>dou</i>	2 <i>shi</i>
Women	2/3 <i>dou</i>	2 <i>shi</i>	1/2 <i>dou</i>	1 1/2 <i>shi</i>

1 *dou* 斗 = 8.44 cup  
 1 *shi* 石 = 10 *dou* = 19.98 liters

According to Wang Xueli<sup>119</sup>, during the Han period, the grain that was distributed to the convicts was presumably unhulled millet and the Han people used the conversion rate in which one *shi* 石 of unhulled millet was equal to six *dou* of hulled millet. Therefore, male convicts

<sup>116</sup> Cerny, Jaroslav. *A Community of Workmen at Thebes in the Ramesside Period*. (Cairo: Institut Francais d’archeologie Orientale du Caire, 1973), 176.

<sup>117</sup> Lesko, Leonard H. ed. *Pharaoh’s Workers*, (Ithaca and London: Cornell University Press, 1994), 20.

<sup>118</sup> The amount is based on the interpretation of Hulsewé (Hulsewé, 1985. *Remnants of Ch’in Law*, 31~33.)

<sup>119</sup> Wang, Xueli. *Qin shi huang ling yanjiu* (Shanghai: Shanghai renmin chu ban she, 1994), 149.

who were involved in heavy work received half of a *dou* (4.2 cup) of hulled millet a day and a female received two fifths of a *dou* (3.36 cup) a day, while male convicts engaged in normal work received two fifths of a *dou* (3.36 cup) of hulled millet a day and a female received three tenths of a *dou* (2.52 cup) a day. Table 14 shows the amount of hulled millet and the calories that they got from the grain, which was probably the only food resource available to them. From the regularly distributed millet, a male who was involved in heavy work got 3,175 kcal per day, a female in heavy work and a male in normal work got 2,540 kcal per day and a female who did normal work got 1,905 kcal per day. If we compare these calories to today's energy requirements, we can recognize that the convict laborers during the Han period should have been able to have enough energy from the distributed grain to maintain their body weight if they got what they were supposed to (see table 15 and figure 7).

**Table 14. Conversion of Unhulled millet to Hulled millet and Consumed Calories a day**

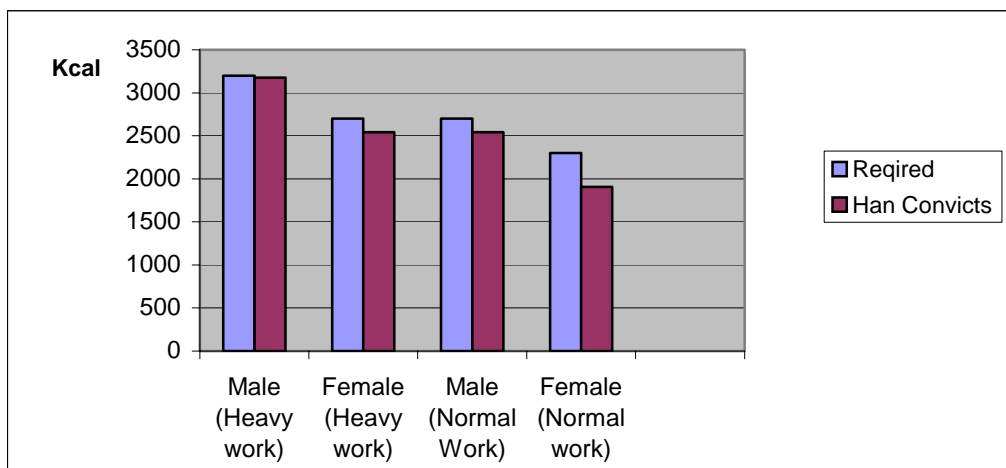
\*Millet (Raw, Hulled) 1cup: 756 kcal<sup>120</sup>

	Heavy Work		Normal Work	
	Male	Female	Male	Female
Unhulled Millet (per a day)	5/6 dou	2/3 dou	2/3 dou	½ dou
Hulled Millet (per a day)	0.5 dou	0.4 dou	0.4 dou	0.3 dou
	4.2 cup	3.36cup	3.36 cup	2.52 cup
Calories (kcal)	3,175	2,540	2,540	1,905

<sup>120</sup> Nutrition Analysis Tools and System (NAT version 2.0) <http://nat.crgq.com/mainnat.html> (2004. 4. 29)

**Table 15. Calories of Han Convicts had and Today's Requirements<sup>121</sup>**

	Male (Heavy work)	Female (Heavy work)	Male (Normal Work)	Female (Normal work)
Required (kcal)	3,200	2,700	2,700	2,300
Han Convicts (kcal)	3,175	2,540	2,540	1,905



**Figure 7. Comparison with Today's Recommended Amount**

However, in this comparison, there are several limitations. We cannot exactly compare their body size and degree of activity, and we do not know the amount of impurities among the distributed grain. Also, it could be possible that the Han convicts probably did not receive the full amount of the normative amount in Qin and Han law codes. Therefore, because of these reasons, there is the possibility that Han convicts actually could not get enough energy from

<sup>121</sup> This is the energy requirement for today's Chinese. Source: Chinese Nutrition Society, <http://www.cnsoc.org/biao1.files/sheet001.htm> (2004.10.1)

distributed grain to maintain their body weight when they worked building the Great Wall or tombs.

Previous research done by Anthony Barbieri-Low supports this assumption. His research says that malnutrition, along with infection from amputations and work accidents, was one of the biggest reasons why convicts laborers died at a rate of approximately one to six people per day at a major imperial construction site during the Latter Han.<sup>122</sup> He used not only the archaeological evidence but also historical records. He points out that *Cai Yong* 蔡邕 who was a scholar and became a hard labor convict during A.D. 159 mentioned, “the convict laborers were freezing and starving. The number of those who did not survive to live out their fated years, was very great.”<sup>123</sup> This shows that convicts during the Han period did suffer from starvation.

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<sup>122</sup> Barbieri-Low, unpublished manuscript.

<sup>123</sup> Barbieri-Low, unpublished manuscript.

## 8. CONCLUSION

For this thesis, I studied how food resources and dietary condition were determined by social and economic status during the Han period in China. This research shows in detail that nobles and high officials were able to have enormous food resources with great variety due to their social and economic power, while the middle to lower classes of Han suffered from a lack of food resources.

During the Han period, nobles could consume abundant calories from various protein resources. It seems that they ate so much meat that they developed diet-related health problems such as heart disease, which killed Lady *Dai*. Whereas, due to their wealth, high officials had ample access to food resources like nobles, many mid and lower officials could have problems in getting sufficient food in their daily life except when they were treated at court. They had relatively low salaries that were not enough to buy meat frequently, but they could occasionally enjoy luxurious food due to gifts and grant received from the Emperor.

Peasants, who had to depend on their cultivation for their daily diet, also frequently had no surplus. They usually could not buy meat, which they did not raise themselves. The invention and popularization of soybean products during this period might have made it possible for the poor to have other kinds of cheap protein resources, but their diet condition usually very poor. Also, through this research we can recognize that the dietary condition and the food distribution of soldiers was relatively stable during normal times, but during the campaign they had to survive on a very small amount of grain. Also, I found that the actual distributed amount of grain for the Han convicts was presumably less than the stipulated amount, which was almost

an equal amount to today's required calories. Because of the small amount of grain and the lack of other food resources, the Han convicts suffered from starvation.

This research shows a broad view of Chinese dietary condition, focusing not only on the variety of food resources of nobles, but also on the different food accessibilities among the officials, and the food deficiencies of peasants. It also deals with the situations of food supply for soldiers and convicts in an effort to reveal the true dietary consumption and nutritional conditions for all Chinese. This research proves that the various classes during the Han period in China had different food resources and dietary conditions.

## APPENDIX

### Food remains from the tomb no.1 at Mawangdui in Changsha, Hunan.

#### 1. Grains and Beans

·Rice (稻 *Oryza sativa* L.)



Sources: Fu, Juyou. 1992. *Mawangdui Han Mu Wen Wu*. P.80.  
*Changsha Mawangdui yi hao Han mu chu tu dong zhi wu biao ben di yan jiu*. P.3.

·Wheat (小麦 *Triticum turgidum* L.)



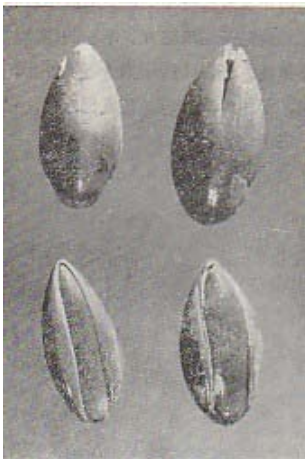
Sources: *Changsha Mawangdui yi hao Han mu chu tu dong zhi wu biao ben di yan jiu*. P.4.

·Barley (大麦 *Hordeum vulgare* L.)



Sources: *Changsha Mawangdui yi hao Han mu chu tu dong zhi wu biao ben di yan jiu*. P.5.

·Glutinous millet (黍稷 *Panicum miliaceum* L.)



Sources: *Changsha Mawangdui yi hao Han mu chu tu dong zhi wu biao ben di yan jiu*. P.6.

·Millet (粟 小米 谷子, *Setaria italica* [L.] Beauve.)

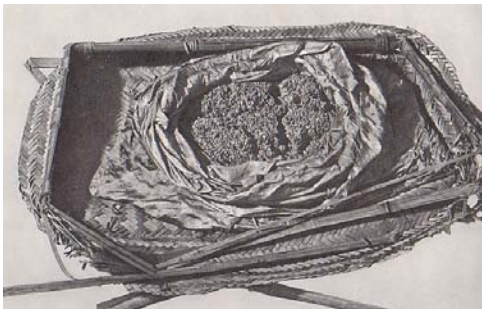


Sources: Fu, Juyou. 1992. *Mawangdui Han Mu Wen Wu*. P.80.

*Changsha Mawangdui yi hao Han mu chu tu dong zhi wu biao ben di yan jiu*. P.6.



·Soybean (大豆, *Glycine max* [L.] Merr.) and Fermented Soybeans (豆豉)



Sources: *Changsha Mawangdui yi hao Han mu chu tu dong zhi wu biao ben di yan jiu*. P.7.  
Hunan sheng bo wu guan. 1973. *Changsha Mawangdui yi hao Han mu*, v.2. Fig.222.

·Red lentil (赤豆, *Phaseolus angularis* Wight.)



Sources: *Changsha Mawangdui yi hao Han mu chu tu dong zhi wu biao ben di yan jiu*. P.8.

## 2. Fruits

·Melon seeds (甜瓜, 香瓜, *Cucumis melo* L.)



Sources: Fu, Juyou. 1992. *Mawangdui Han Mu Wen Wu*. P.80.  
*Changsha Mawangdui yi hao Han mu chu tu dong zhi wu biao ben di yan jiu*. P.9.

·Jujube (枣, *Zizyphus jujuba* Mill. var. *inermis* [Bunge] Rehd.)



Sources: *Changsha Mawangdui yi hao Han mu chu tu dong zhi wu biao ben di yan jiu*. P.10.

·Pear (梨, *Pyrus pyrifolia* Nakai)



Sources: Fu, Juyou. 1992. *Mawangdui Han Mu Wen Wu*. P.80.

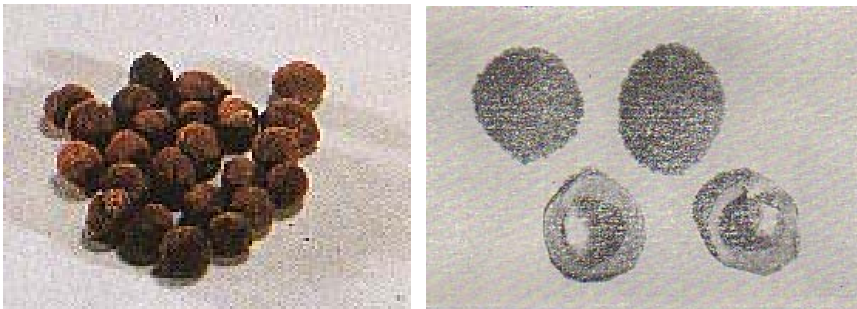
·Plum (梅 *Prunus mume* (Sieb.) Sieb. et Zucc.)



Sources: Fu, Juyou. 1992. *Mawangdui Han Mu Wen Wu*. P.80.

*Changsha Mawangdui yi hao Han mu chu tu dong zhi wu biao ben di yan jiu*. P.15.

·Strawberry (杨梅 *Myrica rubra* Sieb. et Zucc.)



Sources: Fu, Juyou. 1992. *Mawangdui Han Mu Wen Wu*. P.80.

*Changsha Mawangdui yi hao Han mu chu tu dong zhi wu biao ben di yan jiu*. P.12.

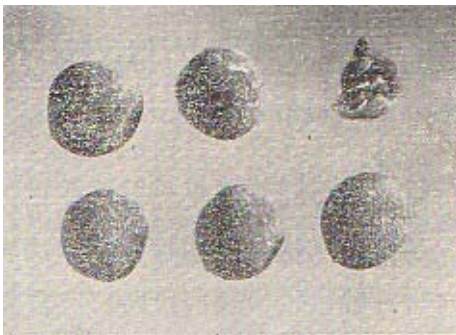
### 3. Vegetables

·Malva (葵 冬苋葵 冬葵 *Malva Verticillata* L.)



Sources: *Changsha Mawangdui yi hao Han mu chu tu dong zhi wu biao ben di yan jiu*. P.17.

·Mustard (芥菜 辣菜 腊菜 *Brassica cernua* Hemsl.)



Sources: *Changsha Mawangdui yi hao Han mu chu tu dong zhi wu biao ben di yan jiu*. P.17.

·Ginger (姜 *Zingiber Officinale* Rosc.)



Sources: *Changsha Mawangdui yi hao Han mu chu tu dong zhi wu biao ben di yan jiu*. P.17.



·Lotus root (藕 *Nelumbo nucifera* Gaertn.)



Sources: Hunan sheng bo wu guan. 1973. *Changsha Mawangdui yi hao Han mu*, v.2. fig.194.

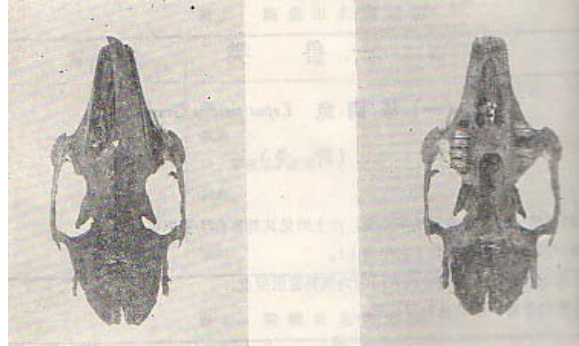
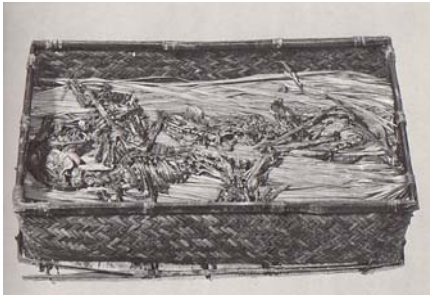
·Hemp (大麻 *Canabis sativa* L.)



Sources: *Changsha Mawangdui yi hao Han mu chu tu dong zhi wu biao ben di yan jiu*. P.18.

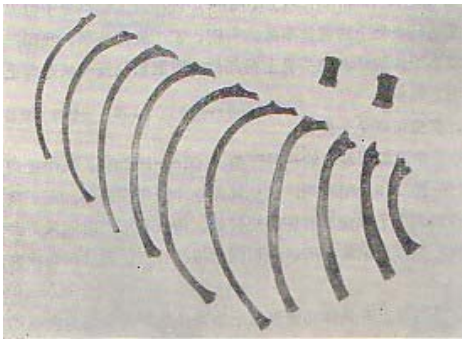
#### 4. Mammal Meats

·Hare (华南兔, 野兔 *Lepus sinensis* Gray)



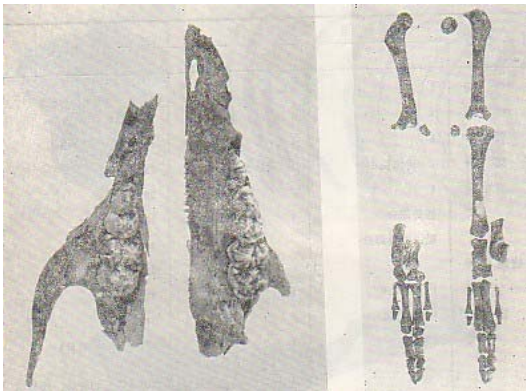
Sources: Hunan sheng bo wu guan. 1973. *Changsha Mawangdui yi hao Han mu*, v.2. Fig.221.  
*Changsha Mawangdui yi hao Han mu chu tu dong zhi wu biao ben di yan jiu*. P.48.

·Dog (家犬, 狗 *Caina familiaris* Linné)



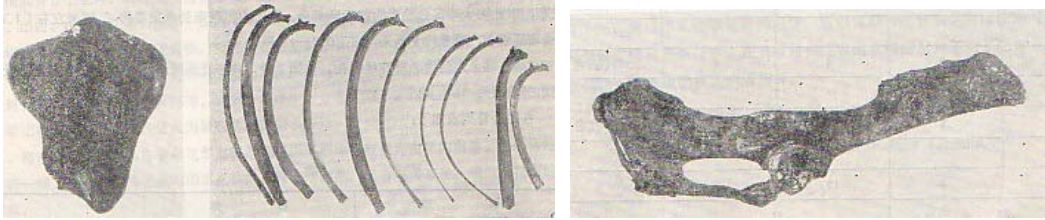
Sources: *Changsha Mawangdui yi hao Han mu chu tu dong zhi wu biao ben di yan jiu*. P.50.

·Pig (家猪, 猪 *Sus scrofa domestica* Brisson)



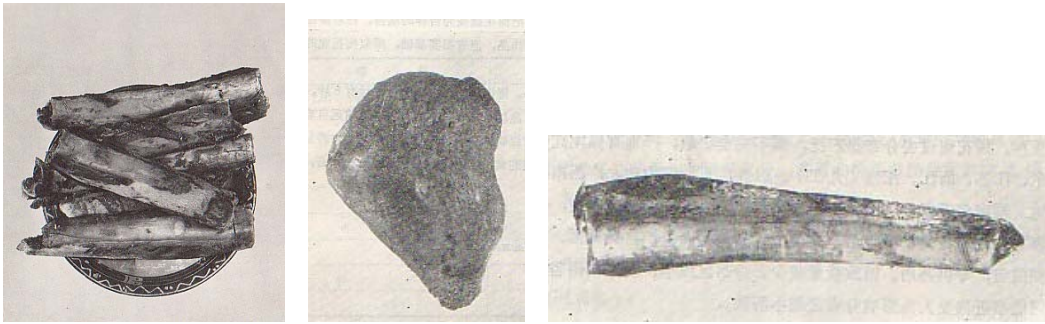
Sources: *Changsha Mawangdui yi hao Han mu chu tu dong zhi wu biao ben di yan jiu*. P.51.

·Deer (梅花鹿, 花鹿 *Cervus nippon* Temminick)



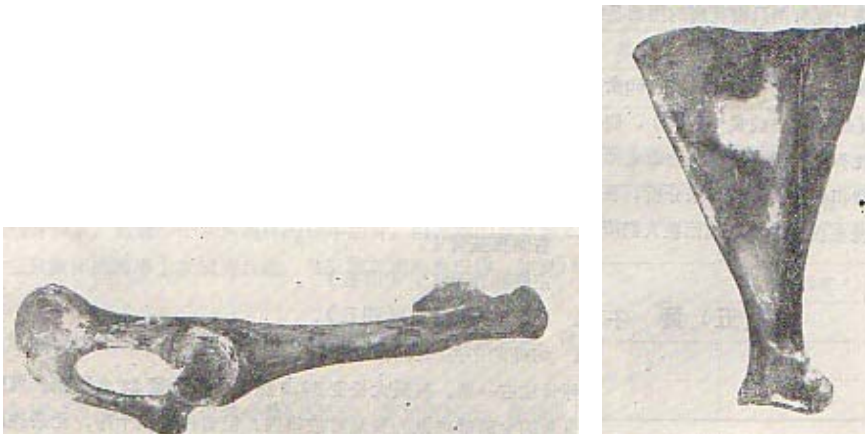
Sources: *Changsha Mawangdui yi hao Han mu chu tu dong zhi wu biao ben di yan jiu*. P.53.

·Ox (黄牛, 牛 *Bos taurus domesticus* Gmelin)



Sources: Hunan sheng bo wu guan. 1973. *Changsha Mawangdui yi hao Han mu*, v.2. Fig.196.  
*Changsha Mawangdui yi hao Han mu chu tu dong zhi wu biao ben di yan jiu*. P.56.

·Sheep (绵羊, 羊 *Ovis aries* Linne)

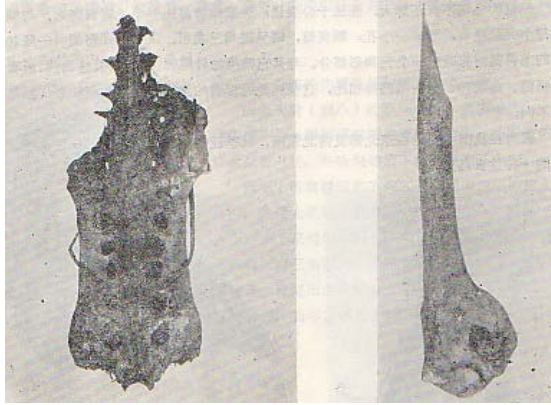
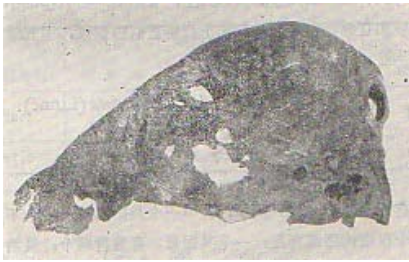


Sources: *Changsha Mawangdui yi hao Han mu chu tu dong zhi wu biao ben di yan jiu*. P.56.



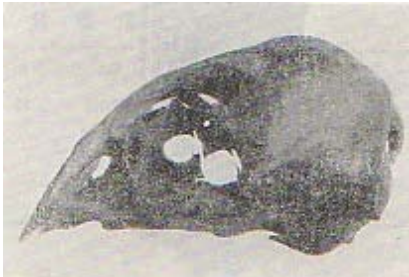
## 5. Bird Meats and Eggs

·Wild goose (雁 *Anser* sp.)



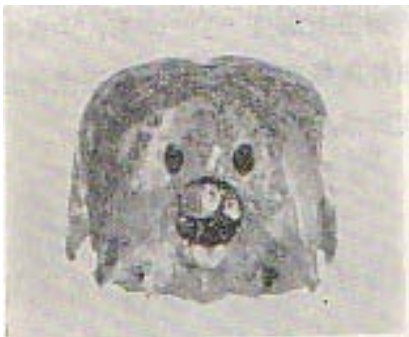
Sources: *Changsha Mawangdui yi hao Han mu chu tu dong zhi wu biao ben di yan jiu*. P.59.

·Mandarin duck (鸳鸯, 匹鸟, 官鸭 *Aix galericulata* L.)



Sources: *Changsha Mawangdui yi hao Han mu chu tu dong zhi wu biao ben di yan jiu*. P.60.

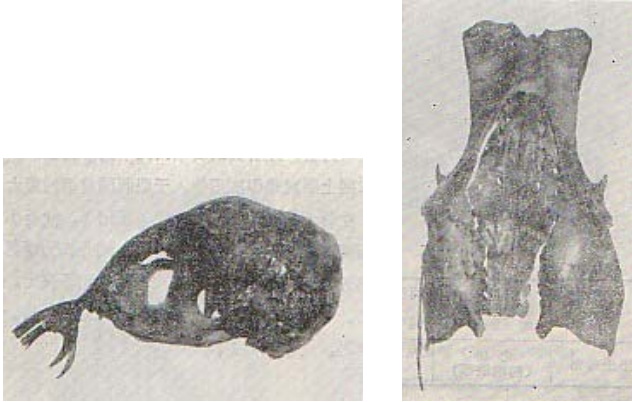
·Duck (鸭 *Anas* sp.)



Sources: *Changsha Mawangdui yi hao Han mu chu tu dong zhi wu biao ben di yan jiu*. P.61.

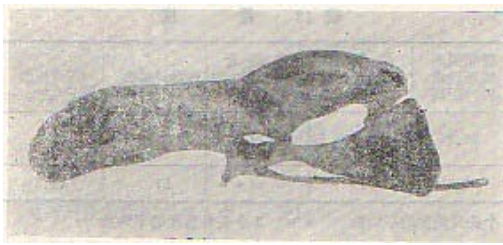


·Bamboo chicken (竹鸡, 泥滑滑, 竹鷓鴣 *Bambusicola thoracica* Temminck)



Sources: *Changsha Mawangdui yi hao Han mu chu tu dong zhi wu biao ben di yan jiu*. P.62.

·Chicken (家鸡, *Gallus gallus domesticus* Brisson)

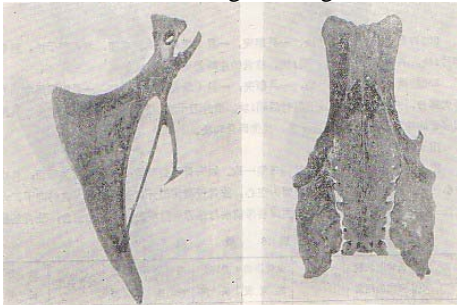


Sources: *Changsha Mawangdui yi hao Han mu chu tu dong zhi wu biao ben di yan jiu*. P.64.

·Pheasant (环颈雉, 野鸡, 山鸡, 雉鸡, 项圈野鸡, *Phasianus colchicus* Linne)



Sources: Hunan sheng bo wu guan. 1973. *Changsha Mawangdui yi hao Han mu*, v.2. Fig.219,195.



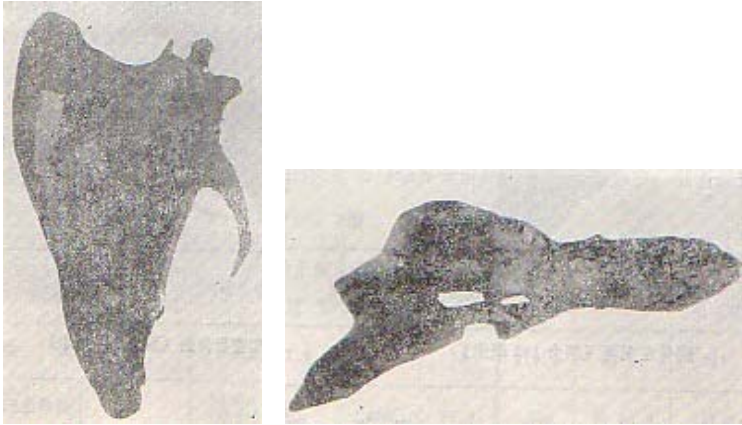
Sources: *Changsha Mawangdui yi hao Han mu chu tu dong zhi wu biao ben di yan jiu*. P.65.

·Crane (鹤 *Grus* sp.)



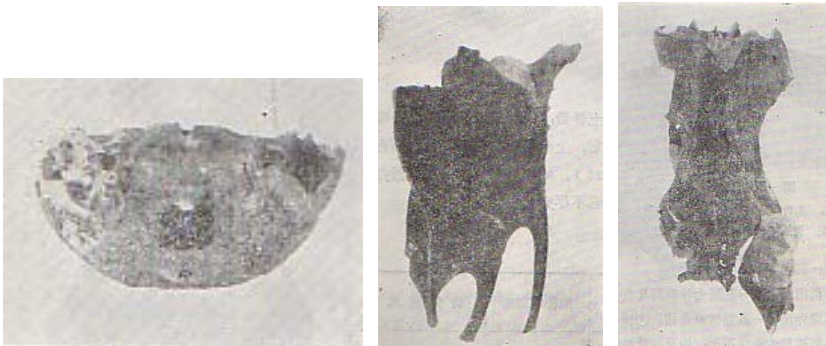
Sources: Hunan sheng bo wu guan. 1973. *Changsha Mawangdui yi hao Han mu*, v.2. Fig.269.

·Pigeon (斑鸠, *Streptopelia* sp.)



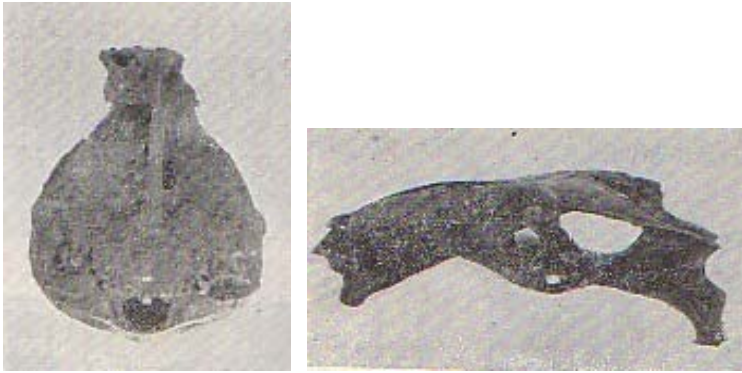
Sources: *Changsha Mawangdui yi hao Han mu chu tu dong zhi wu biao ben di yan jiu*. P.68.

·Owl (鸱 *Athene* sp.)



Sources: *Changsha Mawangdui yi hao Han mu chu tu dong zhi wu biao ben di yan jiu*. P.71.

·Magpie (喜鹊 鹊 飞鹊 干鹊 客鹊 *Pica pica* L.)



Sources: *Changsha Mawangdui yi hao Han mu chu tu dong zhi wu biao ben di yan jiu*. P.72.

·Sparrow (麻雀 互雀 家雀 老家雀 只只 *Passer montanus* L.)



Sources: *Changsha Mawangdui yi hao Han mu chu tu dong zhi wu biao ben di yan jiu*. P.73.

·Turtledove (火班鸟 红鸠 *Oenopelia tranquebraica* Hermann)

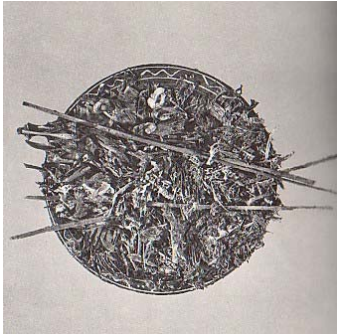
·Eggs (蛋壳)



Sources: Hunan sheng bo wu guan. 1973. *Changsha Mawangdui yi hao Han mu*, v.2. Fig.220.

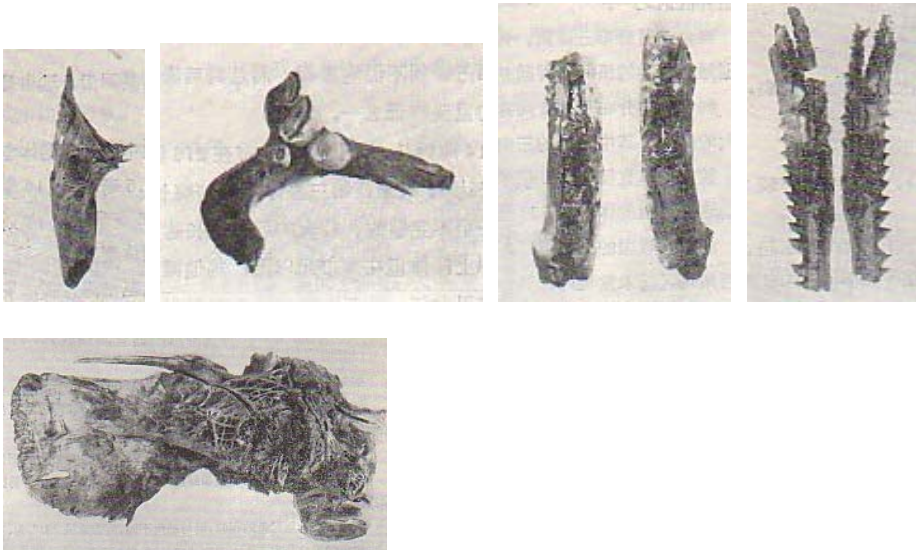


## 6. Fish



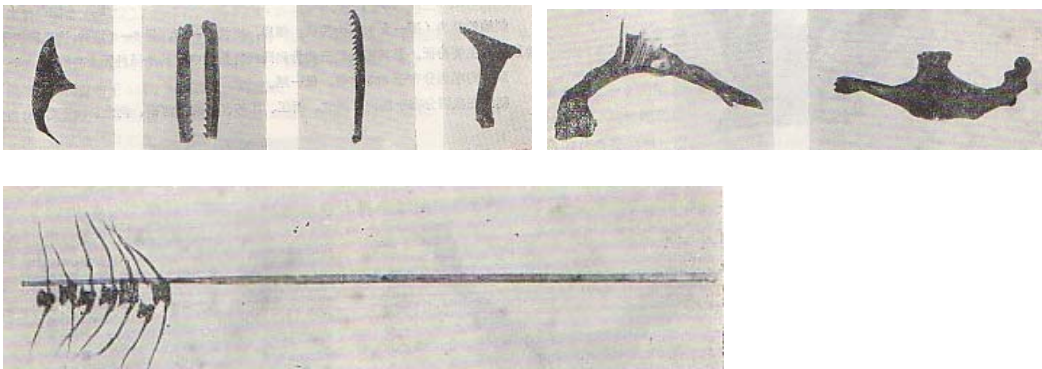
Sources: Hunan sheng bo wu guan. 1973. *Changsha Mawangdui yi hao Han mu*, v.2. Fig.197.

### ·Carp (鲤鱼, 鲤, 礼鱼 *Cyprinus carpio* L.)



Sources: *Changsha Mawangdui yi hao Han mu chu tu dong zhi wu biao ben di yan jiu*. P.75.

### ·Crucian carp (鲫鱼, *Carassius auratus* L.)



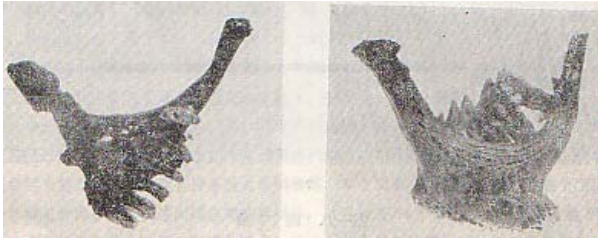
Sources: *Changsha Mawangdui yi hao Han mu chu tu dong zhi wu biao ben di yan jiu*. P.77.

·Bream (刺鰟 *Acanthobrama simony* Bleeker)



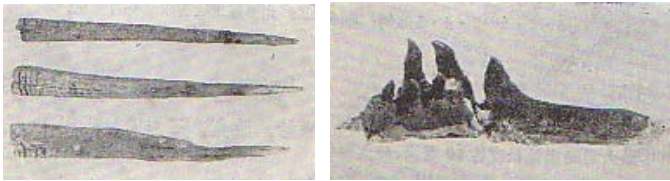
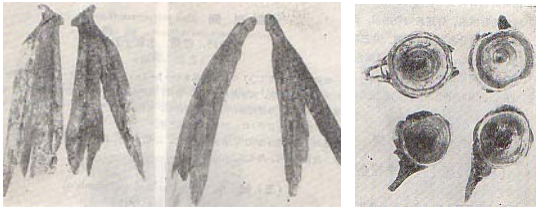
Sources: *Changsha Mawangdui yi hao Han mu chu tu dong zhi wu biao ben di yan jiu*. P.78.

·Silver Xenocypris (银鲴 *Xenocypris argentea* Günther)



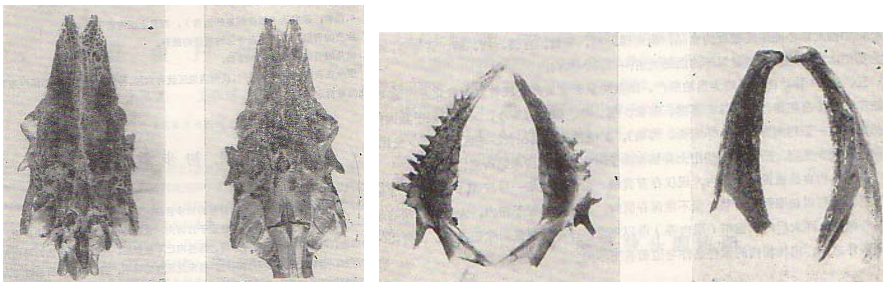
Sources: *Changsha Mawangdui yi hao Han mu chu tu dong zhi wu biao ben di yan jiu*. P.78.

·Catfish (鲇鱼 *Elopichthys bamausa* Richardson)



Sources: *Changsha Mawangdui yi hao Han mu chu tu dong zhi wu biao ben di yan jiu*. P.80.

·Perch (鲈 *Spiniperca* sp.)



Sources: *Changsha Mawangdui yi hao Han mu chu tu dong zhi wu biao ben di yan jiu*. P.81.

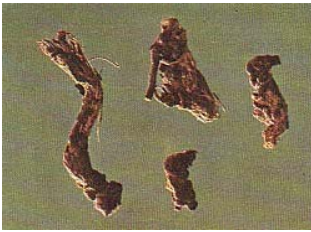
## 7. Spices and Medical Herbs

·Lemon-grass (茅香, *Hierochloë odorata* [L.] Beauv.)



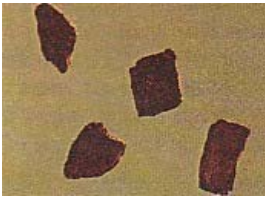
Sources: *Changsha Mawangdui yi hao Han mu chu tu dong zhi wu biao ben di yan jiu*. P.23.

·Galangal (高良姜, *Alpinia officinarum* Hance)



Sources: *Changsha Mawangdui yi hao Han mu chu tu dong zhi wu biao ben di yan jiu*. P.26.

·Cassia bark (桂皮, *Cinnamomum chekiangense* Nakai)



Sources: *Changsha Mawangdui yi hao Han mu chu tu dong zhi wu biao ben di yan jiu*. P.30.

·Chinese prickly ash (花椒, *Zanthoxylum armatum* DC. and *Z. planispinum* Sieb. et Zucc.)



Sources: *Changsha Mawangdui yi hao Han mu chu tu dong zhi wu biao ben di yan jiu*. P.31.

·Flower bud of lily (辛夷 *Magnolia denudata* Desr.)



Sources: *Changsha Mawangdui yi hao Han mu chu tu dong zhi wu biao ben di yan jiu*. P.35.

·Magnolia (藁本, *Ligusticum* cf. *jeholense* Nakai et Kitagawa)



Sources: *Changsha Mawangdui yi hao Han mu chu tu dong zhi wu biao ben di yan jiu*. P.37.

·Ginger (姜 *Zingiber Officinale* Rosc.)



Sources: *Changsha Mawangdui yi hao Han mu chu tu dong zhi wu biao ben di yan jiu*. P.38.

·Wild ginger (杜衡 *Asarum fargesii* Franch.)



Sources: *Changsha Mawangdui yi hao Han mu chu tu dong zhi wu biao ben di yan jiu*. P.39.

·Fragrant thoroughwort (佩兰, *Eupatorium fortunei* Turcz.)



Sources: *Changsha Mawangdui yi hao Han mu chu tu dong zhi wu biao ben di yan jiu*. P.40.



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