

The Wisdom of Thai Agricultural Culture in Prehistoric Times

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The objective of this paper is to present new knowledge concerning the wisdom of Thai agricultural culture in prehistoric times which Tai peoples devised before others. The output of the research is the new finding that the region in which the Tai dwelt in prehistoric times was the place where agriculture originated, not the Fertile Crescent in the Middle East as has been thought.

The oldest Neolithic archaeological site for the study of the origin of the Tai and of the advance of Tai agriculture is Hoe Mu Tu in I Yang District of Joe Jiang Province. There has been found fossils of rice grains of a non-glutinous indica variety. These are the oldest found anywhere in the world, being as old as 7,000 years. In addition, fossils of rice grains have been found in eight other provinces in the area in which the Tai dwelt in prehistoric times: i.e., Jiang Chu, Joe Jiang, Hu Pe, An Hui, Jiang Si, Taiwan, Kwang Tung and Yunnan. No small number of archaeologists and agricultural scientists agree that the Tai were the first to plant non-glutinous indica rice in the area that is now China and that Chinese rice cultivation had its origin in the south, which was the homeland of the Tai.

The Hoe Mu Tu Culture

The site which is the source of information on the Hoe Mu Tu culture is at Hoe Mu Tu in Yi Yao District of Joe Jiang Province in eastern China. The earliest level has been dated to 7,000-6,000 years ago. The identifying characteristic of the earliest level is black pottery with ash admixed. Later levels, dated to 6,000-5,500 years ago, are typified by red pottery with sand and ash admixed.

The Hoe Mu Tu archaeological site is important for the study of the origin of the Tai because the area that is now Ju Jiang Province in ancient times was inhabited by the Yeo, who were the ancestors of the Tai.

The Hoe Mu Tu culture had four important features. The first was the cultivation of rice by transplantation into fields with bunds which were flooded by means of the practice of irrigation. Evidence of this, found in the fourth level of the site, is fossils of non-glutinous indica rice grains which are at least 7,000 years old—the oldest rice

grown by human beings in the world. In the picture can be seen fine fibers extending from the rice grains, husks, stems and leaves in piles 20-50 cm thick.

The second feature of Hoe Mu Tu culture is the use of a stone axe to clear and work the soil and of a bone spade to cultivate rice. Hundreds of such spades have been found. They are made of the scapula of a buffalo or deer. These were tied to a wooden handle with cotton yarn. In addition, wooden spades seem also to have been used; however, only five have been found, these having deteriorated due to the passage of time. Thus, the stone axe, the bone spade, the wooden spade, and also tools made of horn were the tools of the Tai, the oldest agricultural implements in the world. The Han received the spade, called *siam* in Thai, from the Tai and called it *si* after the Tai name for the implement.

The third feature of Hoe Mu Tu culture was animal husbandry and hunting. Over 400 mammalian fossils and deer horns have been found at the site as well as large numbers of bones of reptiles, amphibians, birds, and fish, indicating the inhabitants were skilled in catching terrestrial and aquatic animals.

The final feature of the Hoe Mu Tu culture was the construction of a type of house elevated high above the ground on posts called *kan lan*, which is similar to the Tai house. The Tai-style house at Hoe Mu Tu is the oldest wooden house that has been found in what is today China. It is approximately 5,000 years old, and it is very different from the cave-like houses dug into the ground in which dwelt the Chinese tribes to the north at that time.

In addition, in Hoe Mu Tu culture the gathering and cultivation of agricultural plants was advanced. There are fossils of plants such as *luk yang*, singhara nut, and bottle gourd and there was also mushroom and seaweed growing.

Accompanying production of agricultural products, there was preservation and processing of foods, and this led to the making of pottery at Hoe Mu Tu. There were places devoted to pottery making for each family. The ancient Yeo created pottery bearing designs, and these came into widespread use among the Tai tribes.

Pottery found in the Sip Song Pan Na, including small and large jars, dishes, and lids, attest to the skill of Tian Yeo potters; the pottery made by later generations of Tai are no different from that of the ancient Tian Yeo.

In addition to its pottery making, the Hoe Mu Tu culture developed fashioning containers of wood coated with lacquer. Such lacquerware is a distinctive tradition of the Tai Khoen and the Tai Yuan. The discovery of a dish of this type used by the Tai

for serving rice to royalty is evidence that the Tai had begun making lacquerware in the Neolithic Period.

The San Sing Tui Culture

A Neolithic archaeological site in Sechuan Province at which was found artifacts and other evidence of the agricultural tradition of the Tai 5,000-6,000 years ago is the San Sing Tui site in Kwang Han in Sechuan Province. There were found distinctive Tai artifacts: large numbers of elephant tusks, pots with three legs, three-legged water dippers, gold and bronze masks, and the use of seashells and of *hoi yok* shells as media of exchange.

Neolithic agricultural implements found there derive from the Hoe Mu Tu culture, including the stone axe to work the soil in rice cultivation and the wooden spade to weed and cultivate the soil. The hoe was devised at that time.

Relevant to agriculture and animal husbandry, it was in that time, approximately 6,000 years ago, that nomadic hunting and gathering ended and that the Tai in the south of what is now China began cultivating non-glutinous indica rice and that the Chinese in the north began planting millet.

Advances in implements for hunting included the throwing of sharpened stones and the use of the bow and arrow and of the spear, enabling the people of ancient Sechuan to hunt a broader range of animals. A golden walking stick symbolizing the power of a king and the gods and also wealth has been found which bears scenes of hunting birds and fish with bow and arrow.

Another distinctive feature of the culture of the Choeng Tu Plain in Sechuan Province which appears in San Sing Tui culture is the use of agricultural implements in religious rites. This is a custom that continues among the Tai to this day; for, example, the Black Tai place agricultural tools such as a plow and a *lua* [an implement for leveling the earth] on the altar when worshipping their ancestors.

Another feature that further lends support to the view that San Sing Tui culture was a culture of the ancestors of the Tai and continued the Hoe Mu Tu culture is the construction of wooden houses elevated high above the ground on posts, which were similar to Tai houses and differed from the houses built on the ground of the Chinese tribes.

The Culture of the Jin Sa (Sai Thong) archaeological site

A bronze age archaeological site which yields evidence of the development of agricultural implements which Tai developed from Neolithic precursors probably

after having migrated from the San Ching Tui archaeological site in Mueang Kwang Han in Sechuan Province is the Jin Sa (Sai Thong) archaeological site in Choeng Tu in Sechuan Province. Great quantities of artifacts, dating back 3,300 years, have been recovered from this site. There is evidence of religious ceremonies in which were used elephant tusks, jade, and gold, bronze, and porcelain vessels. The tusks, three-legged pots, and gold masks are emblematic of the ancient Tai, as are gold wares bearing sun and swan motifs, which have been appropriated as a symbol of the world heritage of the Chinese, and also the use of *hoi yok* shells as a medium of exchange.

In addition to fossil rice grains, the site has yielded agricultural implements no less than 3,300 years old. These includes a stone axe used for digging and working the soil and wooden spades (140 cm in length) used for digging, weeding, and loosening the soil for cultivation of non-glutinous indica rice. These are similar to the implements found at the Hoe Mu Tu archeological site in Joe Jiang Province and at the San Ching Tui archaeological site in Sechuan Province. This indicates that in the Bronze Age, agricultural implements made of stone, bone, and wood developed in the Neolithic Age continued to be used. Bronze was never used to make agricultural implements; the metal was reserved for utensils used in worship.

Important evidence that the exponents of the Jin Sa culture were of the same stock as the exponents of the San Sing Tui culture is the discovery of pictures showing the hunting of birds and fish with bow and arrow on a golden headband, indicating that hunting with bow and arrow continued in this period from the time of the San Sing Tui culture.

In addition, the Jin Sa archaeological site has yielded evidence of houses elevated above the ground on wooden posts, like the Tai house, just as at the Hoe Mu Tu and San Sing Tui archaeological sites. The construction of such houses is a distinctive characteristic of the Tai.

Evidence of the dress and hair styles of the ancient inhabitants of Jin Sa are pictures carved in rock. These show people wearing clothing and hair styles similar to those that are worn by the Tai in rural areas.

A Tai Iron Age archaeological site yielding iron agricultural implements is the burial place of a Tai noblewoman contemporaneous with the Han Dynasty 2,100 years ago at Ma Wang Tui in Chan Sa in Yunnan Province. There was found a spade, the digging edge of which was covered with a sharpened iron sheath. In later times, iron spades completely replaced wooden spades in agriculture.

The Lungshan Culture

The Lungshan culture is a Neolithic culture, dated to approximately 4,400-2,000 years ago, the remains of which are found in eastern China at Lung-shan-chen in the Choeng Su District near the town of Long San in Shan Tung Province. The distinctive feature is black pottery, and hence it has been called the Black Pottery Culture. This culture covered the eastern plains of China along the Huang Ho River in the northeast in Shantung, Honan, and Hupeh Provinces and the northern parts of Ansu, Kiang Su, and Joe Kiang, and extending north to the Liaotung Peninsula and south to the Yangse River.

The exponents of this culture were said by Wolfram Eberhard to have been Tai. Their culture was descended from the Hoe Mu Tu culture (dated to about 3,000 to 5,300 years ago) in Joe Kiang Province.

The Lungshan Culture continued the making of black pottery from the Hoe Mu Tu. the pottery was not decorated with painted designs as was that of the Yang Sao culture, which was a Chinese culture of the upper Huang Ho basin.

The agricultural culture of the Lungshan derived from that of the Hoe Tu Mu culture. Rice was cultivated in field flooded by irrigation. Evidence of agricultural implements includes sickles made from shells which had both smooth and serrated edges.

A second characteristic was the use of stone axes developed from the axe of the Hoe Mu Tu culture, including adzes, axes with oval blades, axes with trapezoidal blades, and shouldered axes with flat blades. A special characteristic of this culture is axes and knives with holes bored in them.

A third characteristic of the Lung Shan culture derived from the Hoe Mu Tu culture is animal husbandry and hunting. The Neolithic ancestors of the Tai were farmers who raised animals for draft power, such as oxen and buffaloes, for food, such as pigs, chickens, goats, and sheep, and for hunting, such as the dog.

The Lungshan culture was a Neolithic culture that covered the region from the headwaters of the Yangse Kiang to the Si Kiang River, an area that floods every year, and thus artifacts found include fishhooks, weights for casting nets, and three-pronged fish spears made of bone.

A characteristic of Lungshan culture is that bone was more used than stone as the material for making hunting and fishing equipment and other implements. Such bone artifacts include three-pronged fish spears, cylindrical or leaf-shaped

arrowheads, chisels, awl-like implements. Bone was also used in making adornments, such as hairpins.

In addition to bone, the ancestral Tai also used shell because they dwelt in river basins. Shell implements resembling knives or saws have been found; these may be either rectangular or half-moon shaped blades (semi-lunar knives). Shell knife blades may be either rectangular or trapezoidal. Shell sickles have either smooth or serrated blades.

Besides this, great quantities of mammalian fossils have been found, just as in Hoe Mu Tu archaeological sites. Bones of oxen, buffaloes, deer, and sheep are particularly common.

An outstanding characteristic of the Lungshan culture that shows it was a Tai culture is black pottery, the making of which was received by the Chinese. A distinctive type is a pot with three legged pot, the like of which has been found at Neolithic sites also in Sechuan such as Shan Sin Tui (dated to 5,000 – 6,000 years ago) and to the Bronze Age site Jin Sa (Sai Thong), dated to 3,300 years ago.

Another outstanding characteristic of the Lungshan that shows it was a Tai culture is that silkworm rearing and weaving, which originated among the Tai in the southern part of what is now China. Artifacts found include spindle mounts, sewing needles with eyes, and bodkins.

A third characteristic of the Lung Shan culture that shows it was a Tai culture is the worship of ancestors and the making of propitiatory offerings to the dead, practices which were later received by the Chinese. There was also prognostication using the bones of animals, such as oxen, buffaloes, deer, and sheep, which is a characteristic of the Tai.

Excavations in about 1957 uncovered early Lung Shan culture, dated to about 4,500 years ago, in eastern Sansi Province, western Honan, and southwestern Sansi. There were found crude grey pottery, such as bowls, pots, pointed-bottomed jars, and three-legged pots, called ting, agricultural implements, such as stone axes, stone half-moon shaped (lunar) knives, and particularly relevant as evidence of wet rice cultivation, stone sickles. Early Lung Shan culture shows a preference for bone hunting equipment and implements, such as hairpins and combs made of bone, because animal husbandry was commonly practiced, the animals raised being oxen, buffaloes, goats, sheep, pigs, chickens, and dogs.

On the basis of the evidence available, the Lung Shan culture had been dated to from 4,500 to 1,900 years ago. However, recent excavations of the Neolithic site in Sechuan of San Sin Tui (dated to 6,000 years ago) and evidence of the continuation of this culture in the Bronze Age site of Jin Sa (Sai Thong) (dated to 3,300 years ago), which were the origin of three-legged pots and polished black pottery in western China, have given new evidence that the Tai migrated from western China to the east along the Yangse Kiang, for before this, there was no evidence of this type of pottery or three-legged pots in western China.

Thus, new findings from excavations showing continuity of the 6,000-year-old Neolithic San Sing Tui site in Sechuan and the 3,300-year-old Bronze Age Jin Sa (Sai Thong) site, the most important excavations in the new century, are cause to revise the view that the Lungshan culture followed the Yang Shao culture to the view that Yang Shao succeeded Lungshan and that the Yang Shao pottery developed from the forms of the early Lungshan, based on the discovery of bowls, pots, pointed-bottom jars, and three-legged pots.

Therefore, the beginning of the Lung Shan culture in China should be dated to about 7,000 years ago, based on evidence of the continuation of the Hoe Mu Tu culture of Joe Jiang Province in the San Sing Yui culture of Sechuan Province.

Neolithic Culture in Thailand

Neolithic culture in Thailand derived from the Lungshan culture in China. Professor Wolfram Eberhard stated that the exponents of the Lungshan culture were Tai. They were Tai who dwelt in the river basins of southern China, and they had a distinctive culture, which included cultivation of non-glutinous indica rice by transplantation into flooded fields and the use of polished black pottery.

Evidence showing that culture of the Ban Kao archaeological site in Kanjanaburi Province derived from the Lungshan culture is the finding there of 4,000-year-old polished black three-legged pots. This is a basis to believe that Tai exponents of the Lungshan culture migrated to Thailand in Neolithic times.

One feature of the agricultural culture of the Tai in Thailand in Neolithic times that is shared with that of the Tai exponents of Lungshan culture is the use of black, red, brown or grey, and yellow pottery. This pottery includes pottery that was not decorated or and that decorated with cord marks, cord marks and snake designs, cross-hatching, mat designs, or woven designs. A particularly striking similarity is that the three-legged pots have hollow legs with holes in them. The forms of the pottery include pots, dishes, bowls, jars, jars with knobs on the neck, fruit stands,

pedestalled and stemmed bowls, vessels with polished cord-marked bases, and bottles.

Another feature of the agricultural culture of the Tai in Thailand in Neolithic times that is shared with the Lungshan culture in China is the use of polished stone adzes and axes with rectangular, trapezoidal, or oval heads, or heads like the tip of a bird's beak, or polished shouldered heads. There are also hoes for digging with rounded blades, which is an important type of agricultural implement found at Cheng Su Yai in China, as well as stone bracelets and discs. The stone hunting equipment found in these Neolithic sites include arrowheads and spearheads of cylindrical and rectangular shape.

A third feature similar to the Lungshan culture is the widespread use of bone and antler for making hunting and fishing equipment and other implements. These include fishhooks, three-pronged fish spears, arrow and spear heads made of bone, usually having tangs, chisels, short, double-bladed knives, edged tools, and polishing tools. There is also evidence of the use of pellet bows, for earthenware balls are found.

A fourth similarity is the use of the shells of freshwater mollusks for making implements, such as knife blades. These may or may have holes drilled in them.

Another similarity of the Thai Neolithic and the Lungshan culture is the weaving of cloth. The evidence is earthenware spindle mounts, bone sewing needles, and stone pounders for making bark cloth such as are found in Lungshan sites.

Finally, the fishing tackle found in Neolithic sites in Thailand, such as fishhooks, casting-net sinkers, and three-pronged fish spears is similar to that found in Lungshan sites.

Professor Chin Yudee therefore concluded that the Neolithic culture in Thailand was very similar to the Neolithic culture of China called Lungshan in terms of the location of the villages, the implements used, and the funerary customs.

The Tai Plowing Ceremony

The plowing ceremony is an agricultural custom that has been practiced by the Tai since prehistoric times to raise the spirits of farmers. There is evidence that an ancient Tai king was the one who performed the ceremony and that his queen raised silkworms.

Local chronicles of Lan Na tell of a plowing ceremony held during the reign of Nang Jamthewi, the ruler of Hariphunchai. When the time for planting rice came, Khun Mirakkha, who was the chief ruler of the Lua tribe and who had established his city to the north of Doi Suthep, held a plowing ceremony. He had a pavilion erected decorated with square flags two fathoms on a side. Inside there was a scaffold supporting an altar at eye level. Upon the altar were placed five containers made from leaves. These containers held sweets and meat dishes, betel leaves and areca nuts, bananas, sugar cane, fermented tea leaves, and cigarettes. In addition, similar but smaller leaf containers were prepared to worship Mae Thorani, the Earth Goddess, and the guardian spirit of the place, and these were put in the center of the platform. Around the pavilion were erected bamboo poles bearing at their ends six-pointed star hex signs made of bamboo strips and hanging from which were chains whose links were made of bamboo strips. At the end of the chains swung two fish carved from wood, which were called *pla nai kham* and *pla kang*. There was also a leaf container for the worship of Mae Phosop, the Rice Goddess, and a jar of spirits and a pair of boiled chickens for the worship of the guardian deities of the four cardinal directions. When all these preparations had been made, Khun Mirakkha presided at the ceremony and read the sacred verses invoking the Earth Goddess, the guardian spirit of the place, the guardians of the four directions, and the Rice Goddess. At the end of the ceremony, prognostications would be made. The bamboo chains were inspected; if they were long, there would be plenty of rain and a bountiful rice harvest, but if short, there would be little rain. Then, a young maiden dressed in white would be brought forward and would pick up grains of rice from a sacred vessel with her fingers; if there was an even number of grains, the rice crop would be, if an odd number, half the crop would be lost. The rice grains used in this prognostication were planted in the land plowed in the ceremony, and to ward off pests at each of the four corners of the paddy field was erected a six-pointed star hex sign and these were decorated with Malay ginger flowers.

Evidence that the Tai held the plowing ceremony in ancient times is found in murals at Wat Pa Daet in Chiang Mai Province. These murals, which are the work of Shan artists, show the dress and dancing of Shan, their rice farming activities, and their plowing ceremony.

In northern Thailand, in the ninth or tenth lunar month (June or July), the Tai Yuan hold their plowing ceremony. It begins with worship of Phi Khun Nam, the water spirit, asking that there be adequate water. Before the plowing, the guardian spirit of the watercourses, the guardians of the four cardinal directions, and the Rice Goddess were propitiated with leaf containers with offerings of sweets and meat dishes that were tied to bamboo flag poles with six-pointed star hex signs at the top.

The Tai Lue hold their plowing ceremonies in the eighth or ninth lunar month (July or August). There are two ceremonies: one at sowing the seed beds and the other at transplanting. Their purpose is to worship the Earth Goddess, the Rice Goddess, the guardian spirit of the place, and the guardian spirit of the watercourses and ask for permission to farm the earth. For the seedbed sowing ceremony, a wise man is consulted to choose an auspicious time and to ensure that the direction of plowing goes from the head of the *naga*, the mythical serpent of the underworld, to its tail, for if the plowing should go against the scales of the *naga*, clothing and agricultural implements would suffer damage. At the transplanting ceremony, the Earth Goddess is propitiated with a lump of glutinous rice and a banana. When transplanting begins, the planter recites the Three Refuges; the Pali words for "I take refuge in the Buddha" accompany the planting of first clump of seedlings, the words for "I take refuge in the Dharma" the second clump, and "I take refuge in the Order of Monks" the third clump.

In the central part of Thailand, a ceremony is held to find an auspicious time for the plowing ceremony. It is usually held on an even-numbered day [where Sunday = 1, Monday = 2, Tuesday = 3, etc.] An altar is erected at eye level near a bund of a rice paddy, offerings are placed upon it, a prayer is made asking that the rice grow vigorously, and then the plowing is begun. In Ayutthaya Province, farmers set up four triangular flags in a square in the north of the field and then kneel down and pray to the Earth Goddess, the Rice Goddess and the guardian spirit of the place that the rice grow vigorously and that pests be kept away.

In northeastern Thailand, the plowing ceremony is held in the seventh lunar month (June) to pay obeisance to "Ta Haek," the guardian spirit of the rice field. On the appointed day, the senior member of the family offers four trays of fruit and sweets (*pha wan*) and four trays containing cigarettes, areca nut, betel leaves (*pha jo*) as well as cooked rice, boiled eggs, and spirits to Ta Haek.

In southern Thailand, the plowing ceremony is held in the sixth lunar month (May). A day is selected, but Wednesday is avoided as a bad day which will cause the rice plants to rot. On the chosen day, the farmers offer areca nuts and betel and joss sticks and candles to the guardian spirit of the place and ask permission to conduct the plowing. Then, the plow is drawn around the field thrice, always turning to the right. The plowing ceremony thus completed, the transplanting ceremony is held. Vows are made to ask the spirit of the place to look after the rice crop. Then, a number of seedlings equal to the number of the month in which the ceremony is held are planted; thus, if the ceremony is held in the sixth lunar month, six seedlings are planted. Then above the seedlings is implanted a pole over which an incantation

has been recited and around which a sacred thread has been wound, and so the ceremony ends.