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1961

# The Natural Economy of Laos

Joel Halpern



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January 1961

# The Natural Economy of Laos

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LAOS PROJECT

Paper No. 17

THE NATURAL ECONOMY OF LAOS  
by  
Joel M. Halpern

Note: This paper surveys the situation existing prior to 1960  
and does not consider changes that have occurred since the  
outbreak of the Lao civil war. For agricultural statistics see  
Laos Project Paper No. 9

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1961

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### Agriculture

It is commonplace to state that no understanding of the economy of non-industrialized countries is possible without taking into account the overwhelming mass of people who constitute the peasantry. In Laos one does not make such a statement in the relative sense but in absolute terms. With the exception of government officials, a few craftsmen and a small trading class, all other Lao live in villages. The number of tribal peoples who live in towns is negligible, so that the urban population consists mainly of Chinese, Vietnamese and a few Europeans.

No adequate account exists of the natural economy of the peoples of Laos. An attempt is made here to bring together scattered descriptions bearing on the Lao and the tribal peoples, in order to view the natural economy as a totality and not as a series of discrete entities. As used here the term 'natural' encompasses agriculture, fishing, hunting and livestock raising. One of the main objectives of this discussion is to show the many ways in which the life of the Lao and other peoples overlap or follow parallel lines, and to indicate the flexibility of these patterns rather than viewing them as rigid and rooted in immemorial custom. The concluding section of this chapter examines programs of modernization being undertaken by the Lao government and cooperating organizations, as well as new forms evolving among ethnically similar people in Yunnan and North Vietnam.



We are dealing, here with several separate ethnic groups. Cultural distinctions carry over in part to agriculture, but since there are significant overlaps it will be best to discuss this subject primarily by types of farming although keeping in mind ethnic differences. Accordingly, this section is divided into discussions of wet rice cultivation in irrigated fields, dry rice cultivation in forest clearings, an economic comparison of these two techniques and lastly, subsidiary crops. Since peasant agriculture is not only a means of earning a living but also a supernaturally sanctioned way of life, extensive reference will be made to the religious rituals connected with cultivation.

Wet rice as used here refers to rice raised in paddy fields surrounded by dikes. These fields may either be dependent on irrigation systems or watered by the rain. In Laos glutinous rice of many different varieties is the main crop of the Lao. Non-glutinous rice is a subsidiary crop. In certain cases the situation is reversed among the hill peoples such as the Meo. There is only one harvest a year due in part to the concentrated rainfall pattern and lack of extensive irrigation systems which preclude the possibility of two crops a year.<sup>1</sup> In addition to a source of water for flooding the fields, this type of cultivation demands flat fertile land, since hillside terracing is not practiced in Laos. Valley land and extensive river plains are not too common in Laos, especially in the north, and so wet rice cultivation is practiced there only on a restricted scale, where the few population clusters consist of trade and administrative centers in

narrow valleys bordered by wet rice fields.

These paddy fields are known as na. Generally speaking the system of na cultivation permits a concentration of population and associated with this a centralized political structure, while in most cases those groups who rely primarily on cultivation in burned-over forest clearings form scattered, autonomous village communities.

The ramifications of these two types of cultivation are enormous and affect all aspects of the cultivators' lives. Distinctions are not always clear cut, but there is no doubt that the traditional authoritarian centralized political structures of the Lao and tribal Tai, in contrast to the diffuse forms of authority of the Khmu and Lamet, for example,<sup>2</sup> are directly related to their respective types of cultivation. The potentiality of wet rice agriculture to produce an exploitable surplus and permit the use of intensive cultivation techniques appears to be a key factor in this situation.

#### Agricultural Techniques

Although there is a great similarity in the procedure for cultivating paddy fields in central and northern Laos, certain differences are worth noting. The following two accounts, the first by a Khmu from the area of Luang Prabang<sup>3</sup> and the other describing the techniques used by the Lao in Vientiane Province<sup>4</sup> illustrate this point.

The seventh month arrives.<sup>5</sup> Strip off bark, come home and twist it into rope. Twist rope for holding the clack on the buffalo's neck, twist rope for his noose, twist heavy rope to go around his

neck for tethering him for the night, twist the tether rope, twist rope for the yoke, twist rope for attaching the yoke to the plow. Go and look for the handle of the plow, go and look for the shaft of the plow, go and look for the wooden core of the plow blade. Mount the plow blade. Go and look for the other tools. When they have all been collected, assemble them. When they have all been assembled, cut the grass and scrubble in the rice field. After it has been pulled up, throw away the grass and wait for the rain. When the rains come, go and clean out the seed bed. When it has been cleaned off and burned, plant the rice. When the rains come, go and build up the dikes, let water into the rice paddies, soak them until the earth is soft. After two or three days go and plow. When it is time to plow, plow around the edges first to build up the dikes. When the dikes have been fortified, plow the rest. If you want the paddy to be nice, force the plow in and make it cut deep. When the plowing is finished, soak /the fields/ with water. Let the earth and the stubble become soft and decayed. Then go out and cultivate. Take a harrow and force it into the ground, lift it out, and force it in. When this is finished smooth the surface. When it is all smoothed off, take the seedlings from the seed bed. If the transplanting is done early, the seedlings must be widely separated. If it is done late they must be close together. Put in a lot of paddy.<sup>6</sup> Now let the water in for two or three days, let the rice take root. When that is done, dam off the water, let the rice sprout and leaf out. Then let the water back in again until the time when the rice grows a pod. When it has grown a pod, stop the water until the rice is ripe. Allow the earth to become hard, then get the sickle and go cut the rice. To cut with a sickle, grasp a handful of rice, bend the stalks over and lay them out on the stubble. Then smooth them off and spread them out about one thickness deep. When the rice has been cut, quickly go back and tie up the rice stalks, carry them right back and put them on the threshing floor. When they have dried out, cut off the stalks and throw them away.<sup>7</sup> Take some wood and beat the earth to make it hard and flat. Then go and look for some buffalo dung. Spread it out and plaster it down, bring water and soak it. When it is soaked, let it dry out in the sun. Then carry in the rice and put it on the buffalo dung threshing floor. Lay out the rice and let the buffalo walk on it. When the buffalo have finished treading it out, shake the rice around to stir it up and throw away the rice straw. Then scrape up the rice and pile it together. Take a fork and spread the rice out and fan it. See that the wind blows. Throw the rice in the air. This is unpleasant. It irritates the skin. When the rice has been winnowed, measure it. How much is there? When it has been measured, carry it back to the village. Whoever has no buffalo has to rent one from someone else and return it after he has finished threshing.

The second account is excerpted from observations of a social

anthropologist in the Vientiane area:

Plowing begins as soon as the rains have arrived and the ground has softened. The buffalo, rented or owned, is attached to the wooden plowshare and the farmer merely guides the animal in a criss-cross fashion over the bunded area, exerting only a small amount of energy. Meanwhile, the paddy seedlings from last year's crop are soaked for four days in a small water-filled, troughed-out area. Following the plowing, the fields are harrowed. One small section of paddy field is selected and the seeds are then sown in broadcast fashion over the area....

In approximately six weeks comes the arduous task of transplanting.<sup>8</sup> This is nearly always a group-cooperative enterprise. Small groups will pick the rice seedlings, remove the mud from the roots and tie them into small bunches with paddy stems. Another group will carry the bunches and deposit them in the corners of the bunded fields. All groups then begin the laborious task of the actual replanting.<sup>9</sup>

Three types of rice are used: heavy, medium and light, with the greatest percentage being of the heavy type. These three types of rice mature in 150, 120 and 90 days respectively, and are used in the larger farms to stagger the labor recruiting problems which arise during the short harvest season.

Following the harvest,<sup>10</sup> the chaffing /threshing/ of the rice begins. This is accomplished either by beating the plants against boards or by beating the plants with sticks.<sup>11</sup> The next step, that of milling, is done with a wooden foot-pedaled, mortar-pestle device. It is interesting to note that, in contrast to rice-cycle methods used in Thailand, in Laos buffalo are not used for the chaffing procedure.<sup>12</sup>

The terms dry or upland rice cultivation in contrast to wet, or lowland cultivation, can be confusing. Shifting field cultivation has been defined as a system which can be characterized by a rotation of fields rather than crops, with short periods of cropping of from one to three years alternated with long fallow periods up to twenty years or more but often as short as six to eight years. The forest is cleared by means of slash-and-burn.<sup>13</sup>

An excellent monograph on the Lamet of Nam Tha,<sup>14</sup> a group very similar to the Khmu and living in close contact with them,



introduces the English dialect word swidden. Although by no means universally accepted, during the past few years this term has found increasing acceptance in works dealing with tropical agriculture. The present writer finds it more exact than terms such as burned clearing, and in this study swidden will be used interchangeably with the Lao word hai to denote the type of dry rice cultivation based on the clearing of fields by the cutting and subsequent burning of the forest cover by the Khmu and Lamet, Meo and some Lao in northern Laos. Before comparing this process with irrigated rice agriculture, in terms of yields and its significance in Southeast Asia generally, it may be well to briefly describe the technique as it is practiced by the Meo and Khmu.

The Meo of Thailand, on whom this account is based, first cut the thicket and eliminate small trees. Later the larger trees are cut. When they encounter very large trees which they cannot fell with their axes, they hew out notches in a circle and form a huge pile of underbrush around the trunk. About one month later, when the underbrush and timber are thoroughly dry, the Meo burn the field, clear it of the half-burned wood, which is now piled around the very large trees and burned once more. This kills even the strongest trees whose denuded crowns cannot hamper the growth of seedlings.

During the time between the burning and the first rainfall, the Meo always erect a small work hut. They invariably wait for the first rainfall which will soften the forest soil before they plant

the seeds. The field is not fenced in. However, a fence of crude wooden sticks is erected where there is need for a line of demarcation against another field. After the first two or three strong rainfalls the seeds are sown. This is usually in late May or early June. If the extended family should be very numerous, the freshly cleared land, which may be very extensive, is subdivided into several fields each having a surface of from one half to three hectares. After the performance of appropriate rites, holes are made with a digging stick. Each field is then planted with one kind of seed only, but if the family is not numerous, the seeds are not sown in any particular order. The grains of rice are left exposed in order, the Meo claim, to get sufficient water to germinate.

A great number of game and bird traps are set up. The Meo are fond of using automatic traps against wild boars and stags, and with these automatic devices poisoned arrows are shot from crossbows. This endangers the life of anyone who enters the rice fields without being familiar with the surroundings and at the same time enables the Meo to get game to supplement their diet.

The harvest occurs about four months later. Each rice plant is cut close to the ear with a special sickleshaped knife. Then the rice is bundled and remains in the field until it dries, after which it is carried into the field hut and husked.

After harvesting the rice is taken to the village, where it is stored in dwellings. The Meo build special storage houses only if

the harvest has been large. Grain to be used for sowing is carefully cleaned and piled on a shelf over the fireplace where the smoke will keep away insects and rot. Depending on the fertility of the soil ricefields will yield a harvest from one to three years. Poppy fields however, may produce a satisfactory output even after a use of twenty years. If a field becomes exhausted, the Meo let it lie fallow until a new growth of forest trees has overcome the weeds. The main reason for relinquishing a field is the exhaustion of the nonfertilized soil. Other authors mention as a reason the encroachment of weeds, but this is only a minor issue for the Thailand Meo, and it is considerably less strenuous to eliminate the weeds from a field than to clear land covered with tall forest trees with the help of primitive tools.<sup>16</sup>

This description is supplemented by an account of Meo harvesting procedures in Xieng Khouang, which occurs in late October and points up the division of labor involved.

The rice stalks are gathered into large stacks right on the field. This is done in urgent haste for fear of losing the over-ripened grain. The stalks are then flailed and the grain is stored in huge carrying baskets. This work is the main concern of the women. Transportation to the village may be by human carrier or pack horse. A rice field may be as far as a full day's travel from the village. While the flailing is being done by the women, the men prepare granaries to receive the rice. Some are built on strong platforms outside the house, while smaller ones may be erected inside the dwelling. These granaries are usually made of tightly woven bamboo. During this entire harvesting process every member of the household is involved in the cooperative effort. Feeble elders watch the infants and prepare meals for everyone. Young boys may be seen leading the pack horses laden with grain. Young girls assist in flailing the rice stalks, gathering rice into baskets, and performing other chores.<sup>17</sup>

The following Khmu account describes swidden agriculture as it dominates their yearly cycle of activities:

The first month /December-January/ go looking in the forest. Measure off the place where the rice field will be made. When it has been measured off, come back home, make charcoal, prepare /forge/ knives. When the knives are made, begin to cut down the underbrush. Cut it down during the second month. When this is done, cut the heavy trees. Cut them and spread them out during the fourth month. From the fourth to fifth month, burn the forest and gather up the debris. When that has been done, sow the paddy. When the time to sow the paddy arrives, do it cooperatively.<sup>18</sup> The sowing finished, go attend to other things in the fifth month. When the sixth month starts, go prepare the weeding tools. Go cut the grass and weeds. When the second weeding is finished,<sup>19</sup> it is the seventh month, going into the eighth. Then the men go and search for vines. The ninth month comes and then the tenth. They split rattan vines and make mats for spreading and drying the rice. They split vines and make baskets in which to store the husked rice. Then the men go out and make various kinds of traps -- spear trap, deadfall, pit trap with spikes. Go and look for meat and come back and eat it. The tenth month has already arrived. They make carrying baskets and harvesting baskets. They carry in wood and make the rice field hut. Some people harvest by cutting with a sickle and others by plucking the heads of the rice. They harvest the rice and go and step on it. When it is threshed they store it away. By this time it is the twelfth month. The first month comes. Take the rice and carry it home....

Some people who make upland rice fields do not have enough for the year. Such people are stupid, they really have no sense. They do not have the sense to raise enough rice to keep themselves alive. We do not have enough money to go and buy and sell.<sup>20</sup>

The last few comments are interesting in that the chastising of the poor Khmu probably reflects something of the acculturated status of the informant and his complex of cultural inferiority. His concluding statement is expressed in the first person, implying the general impoverished position of the Khmu in the Luang Prabang area, for, unlike other Kha groups like the Lamet, they generally do not produce a rice surplus.



Before leaving this discussion of types of hai agriculture among the various ethnic groups in Laos, the situation can be summarized by distinguishing three types of hai cultivation. First, among the Lao hai agriculture functions as a supplementary form in areas where the na fields are limited, in periods of immigration and adjustment to new surroundings, or in times of forced, temporary displacement such as that caused by war. To a considerable degree this situation is paralleled among the tribal Tai peoples. The second form of hai agriculture is exemplified by the Meo; here it represents an ecological adaptation of limited time depth based on a pattern of extensive migrations in Indochina. However, if political and ecological conditions are favorable, the Meo are capable of readapting to na agriculture or using the two systems simultaneously. Finally, the indigenous tribal groups of Laos, exemplified by the Khmu and Lamet, appear to have been exclusively dependent on hai agriculture throughout their history so that learning to cultivate na fields with a plow is a qualitatively new experience for them.

Associated with these differing ecological patterns and historical experiences are different levels of general cultural development. Generally speaking the Khmu and Lamet are able to produce only limited rice surpluses. Their social structure does not possess any forms of unity beyond the village levels, the number of their specialists is limited and their position is one of submissive marginality to the dominant Lao. The Meo, although more migrat-

ory than the Khmu and Lamet, nevertheless appear capable of organizing on the extra-village level. Corn as an important subsidiary crop provides livestock feed while rice is generally preferred for human consumption. Corn is known to the Khmu and Lamet but does not appear to be developed as a livestock feed. Certainly it appears that hai agriculture as practiced by the Meo, who also have a well developed livestock raising economy, is able to support a more diverse economy than the form in which it is practiced by the Khmu and Lamet.

#### Rituals Associated with Agriculture

Various means, sacred as well as secular, are taken to insure the water supply and fertility of the crops. The sacred are connected with the dominant belief in phi or nature spirits which exists throughout Laos. A buffalo is killed for the benefit of the phi of the mountain at the start of the rainy season. In April, just before the rains, an elaborate New Year's celebration is held by the Lao. A prominent feature of the festival is the water dousing everyone gives one another.

On an auspicious day in the sixth month of the Lao calendar chosen by consulting the proper sacred manuscript or a local astrologer, villagers make offerings of a boiled chicken, rice alcohol and sometimes a pig to the protective spirits of the village. They beseech the phi to protect them during their work, to keep destructive animals and insects out of the rice fields, especially the small crabs which destroy the crop, and to provide adequate rain



and a good harvest. In addition to this ceremony each worker presents an offering to the spirits of the fields, who live in the trees and in the rice fields.<sup>21</sup> The belief in the efficacy of these phi is still very strong, and the villagers have been known to refuse to work in certain fields if they think the spirits are angry.

In traditional Thai-Lao culture rice is not regarded simply as a food but as a sacred substance presided over by a guardian spirit. In many ways these beliefs are analagous to those connected with wheat and bread among European peoples or corn among the American Indians. A Thai ethnologist describes Me Posop, the Rice Goddess, as the guardian deity of mankind who has the power to endow with health and wealth those individuals who take proper care of the rice, as well as to punish those who ignore or anger her by trampling over a paddy or leaving it in a damp place.<sup>22</sup>

A legend recorded in the vicinity of Luang Prabang purports to show the Lao why it is necessary to labor in the rice fields. A dissatisfied widow cursed the rice and told it to grow as high as it wanted to, saying that she no longer needed it. The rice did so and the grains grew to the size of pumpkins and entered the storage sheds of their own accord. She scolded them for so doing, and ever<sup>23</sup> since then the rice has been small and refuses to grow unattended.

Among the Lao each stage in the cultivation of rice, after the initial planting, is accompanied by appropriate rituals. Formerly,

when it came time to start work in the fields, the King turned the first ceremonial spade of earth, since there was believed to be a degree of kinship between the royal family and the protecting spirits.<sup>24</sup> The rite of Lein Phi Ta Hek ( to feed the phi Ta Hek) is held at transplanting time. Phi Ta Hek is the leading spirit of the rice fields. Altars are built in a corner of the paddy field to receive offerings of glutinous rice mixed with grains of paddy and shaped into ears of rice. This symbolizes abundance. Also placed on the altar are four banana leaves rolled into horns to contain betel. The transplanting starts after the recitation of chants to accompany the planting of the first seven shoots of rice:

I plant the rice shoot; may you be green as the Thao.  
I plant the second shoot; may you be green as the grass  
of the ninth month.  
I plant the third shoot; may the gong of nine kam be mine.<sup>25</sup>  
I plant the fourth shoot; may the ninety thousand pounds  
of gold be mine.  
I plant the fifth shoot; may ninety thousand baskets of  
rice be mine.  
I plant the sixth shoot; may I have a wife to sleep by  
my side.  
I plant the seventh shoot; may a rare elephant saddled  
in gold and silver be mine.  
Glory! Prosperity!

When the transplanting is finished, further offerings are made to Ta Hek to ensure her protection of the fields. These include a boiled chicken, alcohol and cigarettes. During the threshing, four guardian symbols wrapped in white cotton thread are placed on the threshing floor at the cardinal points to form a barrier against the possible entry of evil spirits who might make off with the rice.

The celebration known as Khoun Lane takes place after threshing

has been completed, at the time of storing the rice in the raised storage sheds. At dawn the souls of the rice are informed that food is about to be presented. A meal is offered to the bonzes at the threshing ground, before a gathering of the villagers. After the meal, a bonze climbs on top of the rice pile and reads a traditional text, somewhat different from the legend mentioned before, relating how the rice, once upon a time, had been ill-used by an old woman. Angered, it had sought refuge inside a fish and thus had left mankind to starve. Later the spirit of the rice returned to its proper place.

This recitation is followed by villagers calling together the souls of the rice wherever they may have wandered. Taking a basket of hard-boiled eggs and other delicacies they walk through the fields intoning: " Spirit of the Rice, here for thee are tubers, here are the buds of the areca palm and good alcohol made from your grain. Spirit of the Rice, come down to earth! Come and preside over the festivities I am giving in your honor." Finally, the basket is brought back to the village to be suspended from a beam of the storage loft.

The old women of the village come to welcome the Rice, whose spirit the owner of the basket is thought to have brought back with him. They speak familiarly to it and compliment it, all the while running the paddy through their wrinkled fingers.

The owner brings them a small figure made of straw, and just as they would do for some friend on his return from a journey, they

tender him a sukhwan, tying white cotton threads on the straw wrists. They congratulate the Rice on his having returned among them, bid him welcome in the most affectionate manner and beg him never to leave the granary.<sup>26</sup>

There are even special rites for the re-opening of the storage sheds. Known as Boun Khay Pa Tou Lao, it is celebrated on the third day of the waxing moon of the third month. A platter of offerings for the souls of the rice is brought to the loft. Crouching and holding candles, the people recite, " Today is an auspicious day. We take you. We draw you out. When we eat of you, you shall still remain undiminished. May you always be plentiful." Then they tell the souls of the rice not to fear the rhythmic sounds and heavy weight of the pestles that will soon come to break up the rice.<sup>27</sup>

In recent years these rites have been modified. Bouns such as Khoun Lane and Khay Pa Tou Lao, which were formerly exclusively religious, have gradually tended to become profane. Now they are chiefly times for relaxation and amusement rather than occasions on which to pray and thank the spirits. Yet by no means has rice cultivation become a secular process, for great respect is still paid to the guardian phi of the rice fields, and their altars can be seen frequently in the paddy fields of Lao villages. Bonzes continue to participate in the ceremonies, particularly those rites connected with harvesting, when they are invited to pray in the fields for a good yield the following year.



For the Lao, then, raising paddy rice is not only an economic activity, subsistence or otherwise, but rather a way of life closely interwoven with the supernatural.

Intensive wet rice cultivation as practiced by the Lao and Black Tai is capable of yielding a surplus beyond the need of the farmers. This provides the basis for the establishment of an elaborate hierarchy of political and religious specialists, as reflected in the rituals described. In the case of the Lao the Buddhist priests (and formerly the King, with his ceremonial plowing) have prominent roles. Among the Black Tai hereditary priests and leaders perform important functions. These specialists and their accompanying occupational and/or class specializations do not exist in cultures relying primarily on dry rice cultivation.

The Black Tai usually live in upland river valleys and practice wet rice cultivation utilizing rainfall and natural flooding of streams. Around Nam Tha some villages have simple water wheels which lift water into shallow canals and carry it to rectangular fields surrounded by low dikes. Water buffalo are used to pull plows with iron blades.

The beginning of the rice planting season is heralded by Lon Ton a ritual to attract the spirit of the soil. It occurs before the rainy season, in a special field set aside in each district. The officiating priest, a hereditary leader and the villagers gather at the field and make offerings of food to the spirit of the soil, represented by a simple paper figure. Sometimes a small ball of rice is placed on the figure's mouth. After prayers for a good crop

everyone partakes of rice wine before returning to the village for games and feasting.

After the rice has been planted there are private offerings of the first grains of new rice to family ancestors. During this period nothing may be given to a stranger in the village so that he will not "carry away the luck of the harvest." At harvest time more individual offerings are made to invite the spirit of the rice to come sleep in the granary for the winter. The village is again taboo, and a public ritual is held in honor of Ten Luong, the supreme Black Tai god of the soil, and in sequence, all the other gods and village spirits. A buffalo is sacrificed for this ceremony.<sup>28</sup>

Rituals associated with dry rice cultivation again point up the significance of religious practices. The following Lamet account is abridged from Izikowitz:<sup>29</sup>

When the families have come to a decision about which land to clear and which families are going to work together, the chopping and the clearing of the land can begin. First of all the implements, chopping knives and axes, must be seen to... the smithy is now put in order, and grindstones are brought forth, but before the smithy can be used, a sacrifice to the spirit must be made. Betel nuts, a little salt and one egg are used for the sacrifice...and one says, "Spirit of the pump, eat fruits, eat salt, eat one egg, see that the chopping knives are right. Don't let them be jagged."

Before the Lamet begin the actual sowing, festivals are held to honor the spirits of the village. Betel, a pig and a hen are offered, and when the feast is over, the village astrologer chooses the day on which to start the sowing. Like the Lao and Khmu, the Lamet raise mostly glutinous rice. In certain parts of the swidden they have small vegetable patches, and in other fields tobacco and

chili are raised. Cucumbers, citronella grass, mint, eggplant and various types of beans are also grown in the swidden.

Early in September, when the rains begin to let up, the rice is ready to be harvested. But, in common with other rice-cultivating peoples of Southeast Asia, the Lamet believe in the soul of the rice and make appropriate sacrifices. The concept of soul is, however, among the Lamet reserved exclusively for rice and human beings and does not extend to other plants.

When the Akha decide to lay out a new field, they put their faith in omens. Before a site is cleared they make offerings to the spirits, and after the fields have been burned, two or three members of the village council get together with the shaman who sacrifices a chicken to the spirit of the fields, whose function it is to prevent evil spirits from entering. Twice a year regular sacrifices are offered, first when the new rice plants reach a height of one hand span, and again before the harvest. A small bowl with offering is placed inside the hut where the spirit resides and after the harvest this temple in the rice field is allowed to disintegrate since the spirit now moves into the village. When the field is to be cultivated again, another sacrificial hut is erected.

In addition, the Akha also offer sacrifices when the ears of rice begin to form, at the beginning of the harvest, before the cut and bundled rice is piled up, before threshing starts, prior to bringing the harvest into the village, after the harvest has reached the village and before the first meal is prepared from the newly harvested rice.<sup>30</sup>

When the Thailand Meo has found a suitable site in the forest where he can lay out a field, he goes there at the beginning of the dry season with the members of his extended family. First he sacrifices spirits' money and beseeches first the ancestors, then the high spirit Father-Mother to help him and to protect him and his family against falling trees. He then studies all possible omens. If none develop while the land is being cleared, the work is continued. Since Meo dwellings and villages are located in the midst of forest areas, they regard as omens the behavior and activities of certain animals. When they look for a suitable site they make sure that they cannot hear or see a muntijac. If a turtle or a snake appears when the first tree is cut, they are convinced that they have destroyed the dwelling of a spirit.

Like the Lao, the Meo erect small altars for the spirits in the rice fields and gardens. They often offer sacrifices to these spirits when returning home from work in the fields or before leaving in the morning.<sup>31</sup>

Religious rituals connected with the rice crop are then, common to all the ethnic groups in Laos. In fact, they form an indispensable part of basic agricultural activities. It will be interesting to see to what extent these observances endure or, if they cease, to what extent they will affect related agricultural practices which give supernatural sanction to the work patterns of the villagers, and help to make their work in the rice fields part of a supernaturally ordained way of life. It is possible that once these religious



activities cease, the prestige of agricultural pursuits may come into question in Laos ( or vice versa) as they have in so many other areas of the world. These two developments appear to be closely related.

#### A Comparative Analysis of Hai and Na

##### Swidden Agriculture -- General Background

In order to view the significance of swidden techniques in a broader geographical framework, it has been estimated that one third of the total area used for agricultural purposes in Southeast Asia, including Malaysia, is farmed by shifting cultivators, and that Indochina, a naturally forested area, has some fourteen percent of its land cleared for agriculture and another fifty percent modified by cutover practices and new savannah.<sup>32</sup>

As far as populations are concerned, it is estimated that about two and a half million people in Burma, of a total population of some 19,000,000, are engaged in swidden farming, and that almost a million people in northern and western Thailand depend primarily on shifting agriculture.<sup>33</sup>

If the Lao who practice swidden cultivation either principally or as a supplement to wet rice cultivation, are added to the tribal peoples of Laos, most of whom are swidden farmers, it can be seen that swidden farming is of great significance to the majority of the people of Laos. In some densely populated areas, such as the Vientiane plain, there is relatively little hai farming.

How does swidden rice cultivation compare with the use of

irrigated paddy fields, as far as; adaptation to existing land forms, soil conservation, yields per land area, per amount of seed used and per labor expended, and social and governmental systems based on these respective economies? What are the problems and tendencies as far as changing from one agricultural practice to the other, and to what extent are the two techniques found within a particular ethnic group, a village, a household? To attempt exhaustive answers in a few pages will be impossible, but we shall try, within the limits of available data, to give a preliminary estimate of the situation as it applies to northern and central Laos.

A basic distinction between the na and hai is, of course, the great differences in the population each can support. To cite extreme examples, the carrying capacity of irrigated land may be ten or more times as high as the maximum obtainable under swidden cultivation. A square mile of rice land in the Tonkin Delta can support a population of from 1,000 to more than 3,500, while the same amount of land under hai cultivation can provide for only eighteen to about 160 persons.<sup>34</sup> Actually in Laos the highest population estimate ( outside of urban areas) is 180 per square mile for the Mekong plain; this is just slightly above the maximum that can be supported by swidden agriculture according to the above figures. On the other hand, 4.6 persons per square mile, which is given for the Lamet<sup>35</sup> is considerably under this minimum estimate. These conflicting figures are, of course, a consequence of the fact that no systematic land use surveys have been made in Laos. They suggest

that there may be some overlap between the maximum population which can be supported by swidden agriculture (outside of Laos) and the relatively small population supported by the rather simple irrigated cultivation practiced in Laos. This possibility should not obscure the fundamental fact that irrigated rice cultivation is capable of supporting a much greater population than any form of swidden cultivation. This statement applies to valley or flat land because although hillside terracing for irrigated rice field does occur in some parts of Asia, it presupposes a more complex technological background than the peoples of Laos at present possess. Thus Khmu and Meo swidden agriculture on steep hillsides may represent the most efficient type of land utilization currently practiced in Laos.<sup>36</sup>

The idea that hai cultivation is a labor extensive method of cultivation as opposed to the labor intensive features of na cultivation is not true in the absolute sense. Among hai cultivators clearing the field at the outset is certainly a labor intensive process, and labor is required to guard the fields from marauders in both cases. It appears, however, that hai cultivators are less concerned about weeds and they do not have to go through the laborious transplanting process, nor do they have to worry about the maintenance of dikes and irrigation systems. Fertilizer is provided them by the wood ash, while both green and animal manure is used with varying degrees of frequency by na cultivators. The use of the plow and buffalo in na cultivation implies a greater capital invest-

ment, and so more associated labor, than does the hoe and digging stick of hai cultivation.

#### Hai Farming and Village Stability

The uplands of northern Laos are formed by generally parallel mountain crests with elevations of 4,000 - 6,000 feet. There is a limited amount of level plain in this area, and here are the sites of all major settlements and the only na cultivation in the area. These small alluvial basins were formed where river erosion on less resistant rock hollowed out small circular pockets which are shut in downstream by more resistant rock walls through which the stream has cut a narrow gorge.

How do these geographically limiting factors work out in the specific cases of the Meo, Lao and Khmu? With the exception of the cultivation on the Plain of Xieng Khouang, the Meo depend entirely on swidden agriculture of a type more extensive than that of either the Khmu or Lao, and in the area of Luang Prabang they inhabit mountain areas exclusively, not using the plow nor cultivating irrigated fields. For the most part, their fields are on steep mountain slopes.

In most areas where the conventional economy is followed, the Meo move every decade or so once they have cut over all land within walking distance of their village. Precise investigations remain to be done on this important point.

The Meo tend to migrate as family groups, and like the Lao, usually send out advance parties to scout the new locations. Quite extensive migrations may be involved. Meo in northern Laos recall



moves from Xieng Khouang to Luang Prabang, Sayaboury and Vientiane Provinces. For their main crops -- opium, rice, corn, tobacco and vegetables -- they clear a new site each year although they may use it for several years depending on the quality of the soil.

The Lao and Khmu (and the Lamet) have relatively stable villages when compared to those of the Meo, although here again precise data is lacking.<sup>37</sup> The situation varies depending on the size and location of the village, the land available for crop rotation, and the quality of the soil, particularly its suitability for opium cultivation in the case of the Meo.

The location of the village relative to opium, rice and corn fields can be very variable. At Kiouketcham, for example, the opium hai are located 30 kilometers away. Part of the family goes there during the planting and harvesting seasons, erecting temporary houses near the fields. Rice and corn fields are located near the village. At other Meo settlements in the Luang Prabang area, and in some in Xieng Khouang, the situation is reversed.

Bernatzik states that opium fields may be cultivated for as long as twenty years, but if the opium does not grow well in the new site the village may move much sooner. A decision to move is by no means made lightheartedly and the actual moving involves great effort. Soil exhaustion is not the sole reason for migration. Historically the major motivation for the southward migration of the Meo appears to have been the political and demographic pressure of the Han Chinese. Another cause of migration is epidemics.

In the movement of Meo from Xieng Khouang to Luang Prabang or within the latter province there are some cases in which nuclear families or even unmarried men have migrated, but it is possible that this situation has been brought about by the extremely unsettled conditions in this area since the end of the Second World War. In Luang Prabang there are a number of settlements which have only a few households, although these may be temporary settlements awaiting the arrival of additional relatives.<sup>38</sup>

Upon arrival in a new area they attempt to cultivate not only for their own use, but try to obtain sufficient reserves so that those who follow will have something to eat.<sup>39</sup> After the first successful harvest at the new site, those who have remained behind move in, bringing with them whatever can be transported, even the supporting posts of the old houses.

A most basic criterion in the choice of a new settlement is altitude, since the Meo rarely, if ever, settle below 1,200 meters. This appears to be changing in certain areas of Laos, but in those cases where settlement at lower altitudes occurs the Meo are sure to be involved to a great extent in a cash economy. Within the preferred altitude range the site is selected with great care and is usually on an incline. Bernatzik states that they never build a new village on a plain, in a depression between peaks, or at the summit of a mountain, but prefer a site just below the crest of a mountain range.

It seems fairly obvious then, that in addition to the differences in the population they can support, a further key distinction



between hai and na cultivation lies in the greater instability of the villages of the former. The difference is not absolute and is subject to a number of qualifications. The valley Lao or tribal Tai are by no means entirely stable since they, as well as the hill peoples, migrate in times of war or civil disorder; in this respect the 1950's and 60's have much in common with the 1820's and 70's. Fire and epidemics can also cause a village to be evacuated. After eliminating these basic parallels, however, it remains true that hai fields can be used only for a limited period -- whether for three or fifteen years is in this sense not important, for na fields are comparatively permanent.

When certain upland peoples such as the Khmu and Lamet move, it is to a relatively short distance away, while among the Meo and Yao the move may be from one province to another. In the latter case, not only is the cultivation of opium involved, but the demands of their livestock of which they have a relatively greater number than do the Khmu or Lamet. It is also claimed that erosion is much greater at the high altitudes and steep slopes on which the Meo live.<sup>40</sup>

#### Cultivation Practices and Possible Evolutionary Stages

In Laos, since many Meo living on the Xieng Khouang Plain or near towns such as Luang Prabang, cultivate rice while those in the more remote regions appear to rely on corn, one is tempted to equate wet rice as a primary crop cultivated with the use of the plow as a "modern" phenomenon and the culture complex of hai agriculture, corn and the digging stick as the "traditional" method.

Having touched on migratory patterns in Meo villages and their

associated agricultural patterns as contrasted to the stability of Lao villages, it might appear logical to add these characteristics to the cultural dichotomy outlined above, and then postulate these as evolutionary sequences.

Corn, having originated in the New World, cannot be very ancient in Asia; therefore the developmental sequence might be summed up by equating primary reliance on corn with semi-migratory swidden agriculture, use of the hoe and digging stick, and irrigated rice cultivation with the plow as being linked to a more highly developed civilization.

Unfortunately the data does not permit us to make any such generalizations. In fact, the case of the Meo indicates the lack of a clear demarcation line between hai and na agriculture and the great ability of individual groups to adapt to ecological patterns. Two observers reporting on investigations about three decades apart, both see the Meo in a stage transitional to irrigated rice cultivation.<sup>41</sup> The earlier investigator mentions both the plow and the hoe when speaking of corn cultivation and quotes from a prayer for the planting of corn, perhaps indicating that if it is not an ancient crop it is at least one of fairly long standing. Another interesting point is that fields planted to corn or rice may also be used to grow opium indicating the possibility of substitution from year to year. In the more recent study in Xieng Khouang non-glutinous rice cultivated in hai fields is the main food crop with corn looked upon as a reserve food, ranking third after rice and opium. A few Meo

have begun to cultivate irrigated rice fields in the vicinity of Xieng Khouang town.

A monograph on Sam Neua suggests that corn as opposed to rice cultivation may in certain cases be geographically determined by the altitude at which the Meo live,<sup>42</sup>

Among the Meo he studied in northern Thailand, Bernatzik lists corn in eighth place as a cultivated crop, after rice, opium, sugar cane, yams, cucumbers, radishes and beans. He also found the Meo abandoning the use of the plow in favor of hai agriculture, due to cultivating steep slopes without terracing. He found a very few old Meo still familiar with the use of a plow. When asked why its use had been abandoned, one replied, "The land on which we live, and even more so the regions we had to cross before we came here, were mountainous and stony and did not permit the use of the plow. In our old homeland there were certain regions where we could not use a plow. As time goes on, the old people die and the younger ones do not know how to use a plow anymore, and an old custom sinks into oblivion even where it might still be useful today."

Bernatzik feels this tradition of the Thailand Meo indicates that they did not imitate the use of the plow after they had seen it used by the Chinese and the Annamites on their migration, claiming that the Meo were familiar with the plow before this.<sup>43</sup>

With regard to the Meo in China, a Chinese source describes a mixed hai and na system in western Hunan. Corn is the main crop cultivated in the hai fields and rice in the na fields. A similar

situation exists on Hainan Island. Generally speaking, hai cultivation is resorted to in these areas of China when population pressure becomes intense, and is used as a supplementary technique.<sup>44</sup>

It is reported for the Yao of Laos and Thailand, who cultivate the hai with the use of the digging stick, that rice is the main crop while corn is mainly for animal fodder.<sup>45</sup>

Table 5 summarizes this material and appears to indicate that corn may function as a major food in certain Meo areas. In most reports dealing with the Meo and Yao it is either definitely a secondary food ( occasionally for animals ) or else eaten during hard times when the preferred food, rice, is not available. This suggests that reliance on corn is a subsidiary adaptation to living at high altitude. The minor importance of corn among the Thailand Meo studied by Bernatzik is probably linked to their relatively recent abandonment of plow-rice cultivation. This appears to contrast with the proportionately greater importance of corn among the Xieng Khouang Meo. The Chinese materials and those from Tonkin seem to indicate that the Meo are capable of cultivating irrigated rice fields, but that their limitations appear to be economic and political.

The above descriptions pointedly show the flexibility of Meo economy and its ability to combine corn and rice cultivated in either hai or na of the glutinous or non-glutinous variety. This flexibility has very important implications for contemporary settlement programs which we shall explore in detail subsequently. The preference of the Meo for the mountains may also be a rationalization



of the economic and political pressures to which they have been subjected.<sup>46</sup> But in certain areas such as Kweichow and Hainan, in those cases where it was possible they adopted the total Han economic pattern. (It is not clear for how long the Meo have known terracing and irrigated rice cultivation, although Bernatzik and others claim it is longstanding among them). This is also the reason for their pattern of continuing migrations.

Although obviously the period since the Second World War is bringing immense changes they are not taking place against a background of "immemorial customs," but rather against a setting of constant change. Since cultivation practices vary historically, the settlement of the Meo (in Laos) in the valleys and their cultivation of irrigated rice fields is, then, not something new or unique in their history but rather a readaptation in a recurrent cycle of change as much influenced by political and economic factors as by demographic and geographic conditions.

Swidden agriculture as practiced by the Meo in Laos seems to be a cultural adaptation that may not have a very great time depth. Although Meo swidden practices are sanctified by religious ritual this is not an indication of their constant useage but rather the incorporating or reincorporating of ecological patterns into their familiar universe of nature spirits and deities.

Among the Meo we do not have any neat dichotomy; as a matter of fact, coexistence appears to be common -- hai and na, digging stick and plow, corn and rice. This is not to say that the two methods of cultivation are not distinct, for they clearly are, but rather that

they can alternate in time or be practiced simultaneously by the same people. It appears to be the techniques that change more than the crops.

#### Lao Swidden Farming -- A Supplementary Technique

Swidden cultivators in Southeast Asia have been classified into three groups: those who are sedentary, living in substantial dwellings in permanent villages and constructing temporary houses near their swidden; those who have less elaborate houses in semi-permanent villages, that may be abandoned after one or two decades; and finally those who build a new house, simple in structure as often as a new swidden is cleared.<sup>47</sup>

Historically, swidden farming of the first type was important throughout much of Thailand as well as Laos and has been associated with the movement of Lao peoples from Laos into northeast Thailand. An observer in 1910 wrote that it was probable that not more than half the delta of the Menam (in central Thailand) was under cultivation and that any man could go into the jungle and burn off the long grass and bamboo scrub, and so clear for himself a space in which to plant his rice and, if he wished, to claim as his own. He could also clear a new patch and abandon a former clearing.

In the area of Ubol in northeast Thailand the predominant pattern is of small farmers (Lao) owning their own land. Originally they were settlers from the north who cleared the jungle and established villages. The practice of shifting cultivation appears to have gradually given place to na cultivation with definite field boundaries, but legal title deeds were issued beginning only in 1954.<sup>49</sup>

Aside from occurring historically, reversion to swidden farming can also take place in times of war or other disaster. In 1888 the Frenchman, Captain Cupet, made an exploration of the region north-east of Luang Prabang. He found that much of the area through which he traveled had been devastated by the Ho, and noted the remains of charred house pillars, gardens overgrown with brush and deserted rice fields along the streams. The Lao found it impossible to continue their wet rice farming because their buffalo had been killed, and they took to swidden farming in the forest.<sup>50</sup> Similar situations doubtless occurred in times during the war with the Viet-minh and are probably occurring today as a result of the fighting in northern and central Laos.

With regard to swidden farming among the Lao, estimates were obtained within Luang Prabang Province. They ranged from villages in which there were no swiddens, the population depending entirely on na cultivation, to settlements in which only one house in thirty had a permanent rice field. Other villages yielded estimates of a tenth of the households having paddy fields while in an equal number of villages about a third used swiddens. One Lao swidden farmer said he used a cleared field for about five years before preparing another site; three years appears to be a more common figure.

Not a wide enough survey was conducted to present any coherent pattern over a sizeable area. Even this observer's small survey does, however, present some interesting implications. First is that within a relatively small area (all the villages surveyed were within fifteen miles of Luang Prabang town), there may be a considerable

variation in the basic type of agricultural economy. Some villagers claimed that although they preferred cultivating paddy fields, it was impossible because of the recent lack of sufficient rainfall, or more important, because of a complete lack of or inadequacy of irrigation facilities. This applies to diked fields dependent solely on rain as well as those which utilize irrigation canals. One swidden cultivator maintained that if a way could be found to irrigate the paddy fields, he and his fellow villagers who now cultivate hai would "return" to wet rice agriculture.<sup>51</sup>

Although in certain villages only a minority of people work irrigated rice fields it does not necessarily follow that the others are completely dependent on their swiddens. For, not only in the Luang Prabang area, but also throughout much of northern Laos, the Lao villages are often trading centers for the surrounding mountain peoples. Thus some of the Lao, particularly those in the larger villages situated along the Mekong, earn a significant part of their living from trading.<sup>52</sup>

The Lao feel that swidden cultivation carries less prestige than wet rice farming. Some consider the latter less work since no weeding is necessary. It is reported that the villagers in the region of Ubon in northern Thailand rely on swidden cultivation only when the yields are insufficient from the wet rice fields. The amount of swidden cultivated depends on the labor available as well as the felt need.<sup>53</sup> A general survey for Vientiane Province states that approximately twenty percent of the Lao farmers in that area rely on swidden farming. The villages surveyed were located mainly along



river banks and near roads in the flat plain surrounding the town of Vientiane. It would be expected that the percentage of swidden cultivators would be higher in the mountainous north of the province.<sup>54</sup>

#### Khmu Transitions to Na

Among the Khmu, as among other uplands peoples, cultivating swidden is viewed as the norm, with working paddy fields an innovation. Wet rice cultivation in the case of the Khmu in the area of Luang Prabang is definitely a culture trait borrowed from the Lao, and as such is symptomatic of the extent of their acculturation. It is estimated that in one Khmu village about ten miles from Luang Prabang town ten percent of the farmers had paddy fields. This however, was an exceptional case, not only in the fact that it was a relatively prosperous village as Khmu settlements go, but also since there were a number of Christian converts who may have been more amenable to change.<sup>55</sup>

In Khmu villages surveyed by the present investigator, the percentage was much smaller. Often only the village headman and perhaps one or two others had wet rice fields. In one village a day's walk from the royal capital a paddy field formerly owned by the Khmu tasseng has been lying fallow since his death because "people don't like to work in the na. It is very expensive to buy a buffalo. Even if we do have a buffalo we must sell it if we need money, or we may decide to kill it for a festival. This leaves us with no buffalo to work the na, and we never have enough money to buy a new one. Besides, it is very complicated to drain and to dam and our

yields are higher in the hai."

Despite the factors making for cultural conservatism it seems likely that among the Khmu and other tribal groups cultivation of wet rice fields will increase in the coming years as they become more Laotianized. This change in agricultural techniques is being actively encouraged by a number of Lao officials, and some government assistance has been provided. For example, a group of Meo at Phou Kao Quai near Vientiane have received government gifts of buffalo. In some cases tribal people reluctant to take the major step of moving their homes to the valley have begun to cultivate na while living in temporary houses near the fields. They then return to their mountainside villages when work is completed. This is the case of some Yao in the area of Muong Sing who received tools and seed from the government.<sup>56</sup>

#### Comparison of Na and Hai Yields

How do Khmu and Lao rice yields from both na and hai compare, and how do these figures relate to similar data from the Lao of northeast Thailand and from the Thai of the Bangkok plains? Before going into the figures themselves it is necessary to clarify the term 'yield.' It can be used as yield per hectare, per amount of seed rice and according to the amount produced by a family.

Data, summarized in Tables 1 - 3 should be viewed with caution because other than where specifically noted, reference sources did not record the year of cultivation in the swidden cycle. A glance at these figures and at Tables 10 and 14 might be something of a surprise to those who consider swidden farming as primitive, mar-

ginal and relatively unproductive. Table 1 shows a factor of approximately ten between the highest swidden yield cited, (2,300 kilos per hectare for the first year of cultivation) and the 255 kilos per hectare from the poorest wet rice field in northeast Thailand; (even lower figures are given in Table 6 for Laos). Taking the best wet rice yield for northeast Thailand, it is still less than half the highest swidden yield cited for central Vietnam. The average figure for Lamet swiddens is slightly above the best wet rice yield from northeast Thailand, and the maximum noted for the Lamet exceeds that of the wet rice yield for Bang Chan, a village on the Bangkok plain.

Considering the information available in these tables, we are able to arrive at some idea of the productivity of the na in Laos as compared to those of other areas. In Phong Saly (Table 8) we find averages of about 600 kilos of paddy per hectare, but also in northern Laos averages of 2,020 for the Nam Tha plain and 1,755 and 1,600 for Muong Sai and Muong Ngoi districts in Luang Prabang Province are reported. Table 6 indicates the great variation in yields for the various villages surveyed in north, central and southern Laos ranging from almost 3,000 to a little over 300 per hectare. This, of course, reflects the differing fertility of land, the varying efficacy of irrigation systems and the general level of economic development of the area, plus possible inaccuracies in the statistics themselves. But there does appear to be a regional difference. On the basis of surveys Champassak appears to have the highest average yield of any province (1,231), while in the northern areas of Phong Saly and Sam Neua the range is between 600-700. There is great

variability within provinces and these estimates are certainly not as precise as the figures imply. In Table 4 the different provinces are arranged in order of population, yield per hectare and area cultivated. As might be expected the yields in Laos fall considerably below those in neighboring Cambodia and Thailand (Tables 1, 16-18). The average yield of all of Laos, 932, is almost 200 kilos per hectare less than the Cambodian average and 300-400 below that of Thailand. That there is an overlap in terms of the high average yields of certain villages (Table 6) should, of course be noted. The major problems in Laos, with respect to na cultivation, appear to be the lack of good irrigation systems, the mountainous terrain, and a lack of psychological motivation since excess production is very difficult to market from certain regions. In some cases it is fed to livestock because of prohibitive transportation costs. It is also possible that the extreme fragmentation of the land is a factor, since apparently the small holdings of the Lao farmers are often split into a few dozen plots -- while in Thailand even the largest holdings are only split into a few sections. The fragmentation of the na fields in Laos may be a reflection of the limited area of flat land in the valleys. It seems likely that the hai lands are not so finely fragmented. If more detailed data were available for hai fields it is possible that the rice production in Laos might appear more favorable.

It is interesting to compare the figures in Table 1 with respect to the claims of authorities of the Democratic Republic of Vietnam, who are proud of their efforts to raise agricultural pro-



ductivity in the Tai-Meo autonomous area.<sup>57</sup> Even the "average" exceed all the figures given in Table 1 except that for Japan. The lowest yield cited is 2.7 tons. Here repeated water shortages are mentioned. This compares with a maximum of 1.5 tons recorded for a village on the Bangkok plain. Although it is obvious that the claims may have been exaggerated for propaganda purposes (they may also be paddy figures) with a built-in thirty percent overestimate, still they cannot be ignored because obviously intensive use of labor, fertilizer, and careful planting techniques can produce impressive results, as the Japanese yield indicates.

Implied but not clearly stated in the North Vietnamese data is the shift from hai to irrigated rice culture. This would certainly be a logical step for the Communists since it is easier to control the production and distribution of concentrated wet rice agriculture than of scattered hai plots. The fostering of cooperative, centrally controlled work groups is also important in this connection. Rice cultivation cannot, of course, be isolated from broader political developments. In Thailand and Laos, in contrast to North Vietnam, government participation and control in rice growing has been minimal.<sup>58</sup>

In agricultural reports on areas in the provinces of Luang Prabang, Nam Tha and Phong Saly constant reference is made to water shortages and the lack of irrigation facilities or the inadequacies of existing ones. It is implied that if adequate water were provided almost all of these areas could become at least self-sufficient and others could export surpluses.<sup>59</sup> If the irrigation problem

has been solved by the intensive use of labor in the adjoining areas of North Vietnam, this would go a long way toward explaining their much higher yields. But even the Communists do not claim to control the rainfall and they too admit the crucial problem of water shortages.

The data in Table 1 do not include sufficient background information to permit any real conclusions about the relative productivity of wet rice and swidden-cultivated rice in Laos and Thailand. They do serve, however, to indicate the possibility that hectare for hectare in any given season swidden cultivation, at least in the first year, can be more productive. It is also possible that a greater return per hour of labor may be received from the hai. This point is reinforced by observations of the rejection by the Rhade (a tribe of central Vietnam) of enforced adoption of wet rice agriculture between 1920-1940.<sup>60</sup>

It must be remembered, however, that the yield begins to decline by the second year, and may drop as much as eighty percent by the third. Swidden is an extensive type of agriculture adapted to the mountainous terrain of the Meo, Lamet and Khmu, but lacks the long-term stability of intensive irrigated cultivation which is capable of supporting much larger and more stable populations. Thus we have the seemingly paradoxical situation that while a swidden may give a higher yield per hectare when new, it can support only a relatively sparse population because of its declining fertility.

Tables 3 and 10 give estimates made by individual farmers and the Lao Ministry of Agriculture of crop yields relative to the



amount of seed used. These data, are again, too scattered to indicate any definite conclusions but certainly hint at the possible equality of na and hai in this respect. It should be borne in mind that these figures give only a very rough approximation of hai and na yields since broadcast and transplanted rice require different amounts of seed. Rainfall and the efficiency of the irrigation systems of na fields are also major factors.

A paper on Thai agriculture claims that a proportion of 1:50 between seed and yield can be taken as a favorable situation in wet rice cultivation.<sup>61</sup> The Director of the Lao Agricultural Service stated that this was a good average yield, and that on their experimental farms they average 1:75. There is also variation based on seasonal factors, degrees of soil fertility and differences in individual farming techniques. The highest random estimates obtained from Khmu swidden farmers in Luang Prabang Province approximate the optimum yield cited from Thailand and considerably exceed the average range given for the Vientiane area. Table 3 shows the great variability in this matter.

A more meaningful indication of yield is in terms of household groups. Among the many factors making for difficulty in accurate evaluations, one of the major ones is the lack of a uniform system of measurement, even within the same ethnic group. The Lao, for example, use terms such as touque, kalon and wa; the Yao use mut, and the government uses the metric system.<sup>62</sup>

Some sixty estimates of total household rice production per year among Lao, Khmu, Meo and Yao groups in northern Laos were obtained

to give an idea of the range of magnitude and some basis for comparison with other areas. The results are summarized in Table 2, (see also Tables 6 and 11) although one must allow for distortion when strangers, and foreigners at that, go around interviewing farmers. There is bound to be suspicion and subsequent falsifying.

Although the data given in Table 2 are insufficient to make any detailed comparisons between hai and na cultivators, we can nevertheless make some fairly broad comments concerning the yields per household from na fields and relate this to the amount of land cultivated per family. In Table 11 we see that the average holdings in a Lao village in northern Laos can range from six-tenths of a hectare to almost three, although the latter is unusual. There are even some holdings as large as 8 hectares, but this is very rare. Not included here are the holdings of the royal family and other members of the Lao nobility and some merchants. Despite the fact that there is some tenant farming and sharecropping, the problem of large-scale absentee land ownership does not exist in Laos and tenant farmers are in a minority. Supplementary hai may explain in part the smallness of these holdings. There is no doubt that even in northeast Thailand na lands are larger (Table 19), and in the Bangkok Plain (Table 18) the contrast is even more striking. The average farm size in northern Thailand is given as 9.58 rai or approximately 1.5 hectares.<sup>63</sup> Averages for the northeast, central plain, southern areas and Thailand as a whole, range between 4 and 5 hectares.

These relatively small holdings and poorer yields per hectare in Laos result in lesser yields per household. The largest yield, in Muong Khay, was 12,000 kilos (Table 11), while in Bang Chan more than half the households produced more rice than this. However, the yields do compare with those from Pao-ao in northeast Thailand, although it should be noted that this is considered one of the poorest areas of Thailand.

Despite the lack of precision of certain Lao agricultural statistics, they are specific enough to point up the problem, that at present, generally speaking, the Lao farmer produces barely enough to feed himself and has relatively little if any rice to market. For example, in 1953 Bang Chan produced 193,594 tang of rice (11 tang equal 1 kilo); of this amount 52,548 were consumed as food, 20,264 as feed and 7,682 as seed, leaving a marketable surplus of 113,100 tang.<sup>64</sup> It would be a very rare Lao village that could duplicate this achievement. Herein lies at least a partial explanation of the failure of the Lao farmer to supply the growing towns of Laos with rice. This makes it necessary for Vientiane, and even a smaller town of less than 10,000 like Luang Prabang, to have to rely on imports from Thailand to feed the population. The case of Vientiane might be easily explained since Thai towns with good transportation facilities are across the river, but in Luang Prabang the rice must be brought in by river barge over a distance of several hundred miles. The shortage is particularly acute in extreme northern areas where even local government employees have difficulty buying enough to eat. Prior to independence these areas received imports of food

by road from Tonkin.

There are, of course, no easy solutions to this problem. Nothing can be done to enlarge the small plains tucked in between the mountains in northern Laos. But in the south and even in certain areas of the north, irrigation systems can be established or developed, improved seeds and better cultivation methods can be introduced and greater emphasis can be placed on alternative crops better suited to the terrain or on well-adapted types of livestock.

We have seen how, in terms of yields per hectare and in returns for the amount of seed used, swidden agriculture compares favorably with irrigated rice farming not only in Laos but in some of the more productive areas of Thailand as well. The clearly marginal nature of all types of farming in Laos, and that of the Lao in northeast Thailand as well, shows very definitely when compared to a major rice producing area of Southeast Asia such as the central Thailand plain. The average rice production for the plain village of Bang Chan approximates the maximum yields from Khmu swidden or Lao paddies, while a sub-standard Bang Chan farmer producing largely for his own family would be considered fairly prosperous in Laos with the same production. These differences are dramatically illustrated in the case of a Lao village headman; his yield of 12,000 kilos from three irrigated fields, based in part on the use of hired labor approximates the average of 11,700 kilos for a Bang Chan household.

When comparison is limited to within Laos, the swidden yields per household seem to be similar to those from the paddy fields. This is almost to be expected, for in many cases in Luang Prabang



Province, Khmu swiddens supply the Lao traders in the valleys with a significant portion of their rice needs. It is interesting to note here that, according to available data, the Khmu yields from swiddens have a higher maximum than those of the Lao swiddens, a natural consequence of the fact that swidden farming is the primary Khmu technique while hai cultivation is at best a second choice for those poorer Lao who practice it. An important point here is that swidden land is free for the cultivating while na land must sometimes be rented.

#### Ecological Considerations of Swidden Agriculture

The official point of view of the Lao government (or more precisely the French experts employed by the Royal Government and presumably endorsed by the government) takes a rather dim view of swidden farming in general. The following statement is taken from the 1956-1967 Rapport de Gestion et d'Activité du Service des Eaux, Forêts et Chasses du Laos:

"It is no exaggeration to state that migratory agriculture constitutes the primary forestry problem in Laos. The forest mass almost completely shelters this practice to a more or less significant degree.

"Most of the cultivation practiced in the mountainous areas is done in the rays /hai/. This paradoxical situation is aided by the fact that while the amount of agricultural land in the plains is just about fixed and the forests retreat little due to /na/ cultivation. In contrast, in the mountains a systematic deforestation dangerously menaces the forest cover.

"It is evident that the inverse situation would be the normal one.

"It is often stated that the rays give better yields than the /wet/ rice fields. This is true for the first few years in good soil and after the burning of a 'good forest.' In addition one should consider that the yield calculated for an area is for a single year. In reality however, during a period of ten years, for example, a ray of one hectare cultivated for a period of two years requires five hectares. The actual yield,

"that is to say, the production according to the total surface 'immobilized' is then inferior to the /wet/ rice field. One can roughly distinguish three types of rays in Laos; according to the methods used and their different effects:

"1st, Exhaustive rays: These are the rays cultivated for long periods of time, particularly in the mountain regions of higher elevation by peoples of Chinese origin, typically by the Meo. These are the most disastrous. Actually the long period of cultivation literally exhausts the soil and reconstitution of the cover is almost impossible.

"2nd, Subsistence rays with short rotation: These are cultivated in an attempt to assure an adequate rice harvest. The period of cultivation is fairly short, usually two years. The /vegetation/ cover can be regenerated, but fire and accelerated rotations help to further the process of soil exhaustion. This type is practiced in the mountains by the Laotheng and sometimes at lower altitudes by the Lao.

"3rd, Supplementary rays: Practiced everywhere by valley villages to produce additions to the harvest. The period of cultivation is generally short. Practiced less systematically, they are frequently made in more or less isolated parcels of land, which facilitates the reconstitution of the surface cover. Their area is very variable. In general, they increase after a period of poor harvests, and diminish when this problem lessens.

"Because of the lack of basic statistics, it is difficult to evaluate even the area of the rays. One can nevertheless get an idea of the importance of this problem:

a/ One can estimate the population of Laos at 2,000,000 inhabitants. The statistics of the Ministry of the Interior list more than twenty-six percent as Laotheng and Meo.<sup>65</sup> One can consider that since the Lao population also practices rays, it is possible without exaggeration to say that two-fifths of the population makes some sort of rays. This gives us 800,000 inhabitants or 160,000 families. At one hectare of ray per family we arrive at the figure of approximately 160,000 hectares of rays.

b/ One can also make an estimate based on the area of /wet/ rice fields cultivated. This area is estimated at 700,000 hectares. If one estimates that the area cultivated in rays is one-third of that cultivated in /wet/ rice, one arrives at the figure of approximately 230,000 hectares of rays, a figure quite different from the one above.

c/ It is thus possible to estimate without exaggeration somewhere between 160,000-200,000 hectares of rays. We will not comment further on this figure. The annual destruction /of the forests/ would

"be on the order of 50-100,00 hectares. This represents an area equivalent to Pakse.

" We do not know what proportion of this area is regenerated but it is certainly less than half. With this pattern it is not surprising that the effects of this deforestation are felt in northern Laos.

" One sees then, in comparing the area of destroyed forests which are all of the dense or semi-dense type, that there is no common measure for comparison of the forests destroyed by this practice and the areas removed from actual usage. (Lumbering, production of charcoal etc.)

" One can at least note that a good proportion of the firewood consumed by the inhabitants is provided by the forests burned for the rays.

" There is no little truth in the fact that the problem of the protection of the forests, particularly in the mountainous areas must be given first priority in placing a rational economic value on the forests of Laos."

Perhaps most important in these official comments is the great emphasis placed on preservation of the forests and the negative attitude toward hai cultivation as a whole even though its superior yields under certain circumstances are conceded. Such views do not help in the solution of the problem, for unless the Lao government is prepared to immediately remove all of the mountain peoples to the valleys hai cultivation will continue.

Also important are erosion and soil exhaustion. Implied in the report is a single intensive occupancy of the land so that the destruction is progressive and the forests do not rejuvenate. Although this is partially so, looking more closely at the situation we discover that a wholly negative picture does not emerge.

According to Izikowitz,<sup>66</sup> who has made the only comprehensive study of a hai cultivating group in Laos,

"The Lamet...are not nomadized. Thus, when they have harvested they leave the swidden, and allow the forest to repossess the lost

"territory. Then they do not return to the same place until after from twelve to fifteen years.<sup>67</sup> Only then has the forest grown up to the extent that the land can again be used for cultivation. Thus it is easy to understand that the Lamet require vast regions for their disposition, and indeed, they have no lack of these....

"A newly deserted swidden...covered with bush growth is called prim by the Lamet. There the forest gradually grows up again, and a young forest of this kind the Lamet call lau. Not until after twelve to fifteen years have the trunks grown to any considerable size and the undergrowth given way to the overshadowing trees. A forest like this is called klut, and is just the kind that is suitable for clearing."

Many investigators have stressed the fact that swidden agriculture can be practiced in such a way as to conserve forest resources.

Some claim quite positively that frequent fires actually promote the growth of certain types of forest. Historically most forest-living tribes have not been at all careful in extinguishing fires, and in fact, fires have been deliberately started among many many non-agricultural peoples to make access to game easier and to promote the growth of wild seed plants. Therefore talk of fire simply as a negative ecological feature does not accord with its widespread useage, often intentional, throughout human history.<sup>69</sup>

Some of these ideas are directly applicable to the situation in Laos. That is, in order to eliminate or modify the hai system the government must make a large capital investment in setting up new communities. Implicit also is the assumption that compulsion must be brought to bear, if necessary, in breaking up old cultural patterns. In this respect it would be very interesting to know to what extent North Vietnamese and Chinese governments have succeeded in modifying traditional agricultural practices; unfortunately only fragmentary information is available.



The need for further research on precise techniques of hai cultivation practiced by the different mountain peoples in Laos should be emphasized. It is quite possible that, like the Hanunoo, they practice certain conservation techniques. Izikowitz provides us with clear evidence that the Lamet practice rotation and are aware at least implicitly of the importance of reforestation. Freeman's ideas supported by certain of Gourou's comments, of definite hai usage on a one-year basis followed by a decade or so of rotation strongly suggests that hai cultivation practiced with certain limitations may be continued without seriously jeopardizing all of the forest cover.

Migration patterns of the Meo, Khmu and Lao also need more study. Although over the generations some of these peoples may move long distances, their short-term circular patterns and reusing of certain areas suggests a possible intensive-extensive hai cultivation that may become more important as the population in the mountain areas increases.<sup>70</sup>

Certainly swidden agriculture should not be regarded as a primitive, inferior type of agriculture to be abolished as soon as possible, but as an extensive type of land use in some ways well-suited to the mountainous areas settled by the Khmu and Meo. As we have seen, a major drawback is that it can support only very limited populations. Another is that under conditions of rapid culture changes, when population pressures increase and the people do not allow the forest to regenerate, the soils become exhausted and eroded at the same time. In Laos hai cultivation must be regarded

as a complex series of interrelationships that must be considered if some of her basic agricultural problems are to be resolved.

Generally speaking, northern Laos is a deficit area as far as rice production is concerned. Recently the Ministry of Agriculture with the aid of funds and technicians supplied by the American aid mission, has begun to construct a series of small concrete dams to further irrigation and make possible two rice crops a year. The eventual goal is to make this region independent of rice imports from Thailand. Production however, is not the only problem. There are some areas which produce a surplus but lack transportation. A high official in the Lao Ministry of Agriculture has been advocating an import duty on rice to encourage local production.

"If one estimates the population at 2,000,000 and the daily per capita consumption of rice at .5 kilos, the total consumption would be about 365,000 tons of rice annually. In the Annuaire Statistique du Laos (1951-52) the gross growth of land under rice cultivation rises from 386,000 hectares in 1951 to 585,800 hectares in 1952. It has been estimated that the present /1957/ land under rice cultivation amounts to at least 700,000 hectares, yielding .7 tons of white rice per hectare, or a total production of 490,000 tons of rice if all fields were cultivated. There is also fairly large production of mountain rice. The Forest Service estimates its annual cultivation at 160,000 to 230,000 hectares, or about 200,000. Even if the ray yield doesn't exceed .5 tons of white rice per hectare, the total production would be 100,000 tons which, added to the estimated production of 490,000 tons from the /na/rice fields, would give a total production of 590,000 tons of white rice, against the consumption figure of 365,000 tons." <sup>71</sup>

In the light of these statements Table 15, giving the imports of rice from 1950-1956, is significant. In view of Laos' extremely underdeveloped transportation system, surplus in some areas and inadequacy in others is understandable. This, however, does not explain the drastic increases in rice imports. Two factors are

involved: first, the growth of Vientiane and other towns after Laos gained her independence, and second, the American aid program, which because of certain currency restrictions and other regulations permitted importers to make a big profit on their transactions. In 1958 there was a currency reform, thereby removing much of the motivation for excessive rice imports. There is also prevalent in the government the feeling that Laos should attempt to be self-sufficient in rice production. Certain projects have been instituted in an attempt to achieve this end, but it evidently will be some time before these measures are established on a scale sufficiently broad to make a dent in the problem.

#### Subsidiary Crops

The Lao of the Vientiane area generally do not plant a second crop in the idle rice fields, a condition existing primarily from lack of sufficient water and of implements for irrigation. Kaufman remarks:

"On several occasions informants stated their main reason for not growing vegetables was not lack of water, but the fact that poorer relatives constantly borrowed vegetables without repaying them, thereby making vegetable production quite unprofitable. Even farmers who do not raise vegetables must supplement their diet with vegetables from the market at a monthly cost of about 200 kip /in 1957/." 72

Where an adequate water supply is available, cucumbers and sometimes manioc and corn are grown in the paddy fields. Individual household compounds may grow some peppers, cucumbers, sugar cane, betel and a few fruit trees. No compost or other fertilizer is used in either field or garden. 73

A somewhat similar situation applies to the Luang Prabang Lao.

In addition to the items mentioned above, some villagers grow eggplant and chili in their paddy fields. Gardens on the river banks are cultivated during the dry season. These are particularly important in the vicinity of the town, since they supply the market. In some villages where people have been forced for one reason or another to give up their rice fields (drought, breakdown of irrigation system, army confiscation), increasing emphasis has been placed on gardens.

In the Tai Dam village on the outskirts of Vientiane town, intensive horticulture is practiced by the women, assisted by children and older people, since the settlement has no rice fields (the men are traders, laborers and craftsmen). Some of the town residents who are not primarily farmers maintain small gardens on the banks of the Mekong and the Nam Khan, raising cucumbers, tomatoes, salad greens, eggplant, chili, onions, cow peas, a sort of spinach, bonarista beans and peanuts.

In villages in central and northern Laos bananas are grown in nearby fenced off areas. More prosperous villages near towns have barbed wire fences which are designed to keep buffalo out of the cultivated areas. Pineapple, cassava, mangoes, gourds, pomelo, papaya, yams, betel nut, sugar cane and some coffee are also cultivated in small amounts. In every Lao village there are innumerable coconut trees surrounding the houses. There are also quite often a few fruit trees within the pagoda compound. Although oranges are not grown in Luang Prabang district, they are raised in several areas within the province, particularly in the area of Nam Bac. Cotton is



raised in certain Lao hai, separately from the rice, but has declined in importance in recent years as manufactured clothing has become more easily available.

In certain areas of northern Laos, corn is an important supplementary crop. When the rice fails it may become the primary crop, as is often the case among the Kha Ko of the Muong Sing area. The potato is also important here. It has been noted that in some villages in the area of Muong Noi (Luang Prabang) where they can raise only a three-month supply of rice, corn and manioc are cultivated extensively.<sup>74</sup>

Among the Khmu some beans, cucumbers and corn are grown in the swiddens, mixed in with the rice. In other hai they raise chili, okra, citronella grass and eggplant. Other vegetables include occasional onions, garlic, cabbage and Chinese mustard. This is supplemented by the gathering of roots, mushrooms and bamboo shoots. Tobacco, cotton and opium are also grown in small quantities.

For the Meo, glutinous and non-glutinous varieties of rice must be considered the main crop. In times of failure of the rice crop of the Meo in Luang Prabang area, corn is still a major human food.<sup>75</sup>

It would hardly be correct to label opium cultivation among the Meo as a subsidiary activity. Accordingly, this important cash crop is discussed separately in the next chapter to emphasize its economic significance for the Meo. In the opium fields cucumbers, Chinese mustard, cabbage and potatoes are grown, while the corn, raised mainly as feed for the horses and pigs, is usually grown separately.<sup>76</sup>

A similar situation exists among the Yao.<sup>77</sup> It has been reported that Meo in more isolated areas rely on corn as their main food, with the shift to rice being a recent occurrence for many groups. Most of their deities are connected with corn, and corn deities are used even in connection with the rice crops.<sup>78</sup> As we have already seen, however, these trends are reversible and the relative importance of corn and rice varies greatly in different areas.

Reinach remarks:

"If he /the Meo/ stays in one place for any length of time he also produces, in addition to the maize and rice which form the basis of his food supply and the opium which he smokes, very fine eggplants, gourds, sweet potatoes and nonsweet potatoes sorrel, green beans and all the French vegetables whose seeds are given him."<sup>79</sup>

The Meo in Laos and in Thailand plant vegetables such as beans, peas, pumpkins and cabbages at the same time as the opium poppies. Bernatzik notes their importance in Thailand, primarily because they can be harvested as early as a few weeks after planting, although most are allowed to grow two months. Tobacco is also planted together with the poppies and harvested five months later. Red and white onions are grown in the poppy fields after the seed has begun to sprout. Sesame is planted after the rice and harvested four months later. These fields can be used as long as those for growing rice, and are allowed to remain fallow for the same period. Oil is extracted from the seeds.<sup>80</sup>

For the Tonkin Meo, buckwheat is important and is harvested twice a year, the first time in the fourth month, and again in the twelfth. They also cultivate hemp to which they devote their best valley land. It is sown in the fourth month and harvested in the



In Thailand the Meo carefully select, plant and cultivate fruit trees. These include banana plants, lemon, lime and rarely, orange trees. Peaches grown by the Xieng Khouang Meo, and such groups as the Kha Ko constitute an important trade item. The Akha plant taros and yams and harvest them about three months later. They also plant melons at the end of May and harvest them four months later. Pumpkins are planted at the end of April and harvested after five months.

Tea is a secondary crop of the Lamet, grown in plots in the woods. In and around Lamet villages are small fenced-in garden patches where a few vegetables are raised. There are also enclosures for fruit trees such as mango, tamarind and the citrus varieties -- lemon, orange, tangerine and pomelo. In addition, every family has a banana grove. As among the Lao, these are enclosed because they must be protected from the pigs, who are fond of the stalks. The gardens are tended mostly by old men and children who do not go to the swiddens.<sup>82</sup>

Gathering is an important supplement to the economies of all these groups. They rely particularly on forest products such as roots, tubers and fruits in the period when food is short before the rice harvest matures. For the Khmu they are significant trade items. When there has been a bad harvest collecting becomes almost a necessity for survival.

#### Fishing and Hunting

As inhabitants mainly of riverine regions, almost all Lao are

fishermen. This is particularly true of those who live along the major rivers. Yet fishing has never been an important aspect of the natural economy. Certainly few Lao live solely from the profits of fishing, for this activity serves mainly to satisfy family needs. In a village on the Mekong near Vientiane one man said he derived his main income from fishing. If true, it is an exceptional case. Should someone happen to make a good catch, it is possible that he would try to sell part of it provided there is a nearby market town. But in most cases the fish is kept for personal consumption. Therein lies one of the main reasons for the shortage of fish in the towns, and the importation of dried fish.

Most Lao villagers share a passion for fishing. During the dry season several families or even an entire village will organize collective fishing outings. The yield serves daily needs and the surplus is preserved in salt to be used in the preparation of the Lao dish padek made of fermented fish and eaten when fresh fish is not available. For this purpose a household needs about forty to eighty kilos a year, and the individual farmer catches just the amount of fish he needs.<sup>83</sup>

Certain kinds of fishing are traditionally associated with ritual observances. Catching of the pa-bouek, a large sheatfish that sometimes grows to a length of six and a half feet, has been observed at Ban-Ang, a small village upstream from Vientiane, where the Mekong suddenly opens out to almost a mile in width. Fishing here lasts three days and is always fixed for the fifteenth day of the new moon in the third month of the Lao calendar. It is forbidden

to fish for the pa-bouek at any other time.

A few days before the fishing is to start, the Lao administration appoints an official to direct operations. As soon as the fishermen arrive on the morning of the appointed day, they wash their pirogues and sink them keel upwards at the river's edge, and attach small bouquets of flowers with white thread as an offering to the phi. Before the fishing starts the phi of the village is invited to come down to the river bank where a shrine has been set up and offerings of fruit and flowers are displayed. The first fisherman to catch a pa-bouek will offer the head to the phi.

These ceremonies are the occasion for a village fair, and merchants come and set up their stalls. A female shaman communicates with the phi of the village and of the local cave where the fish supposedly dwell. On at least one occasion she found the spirits displeased, and the quest for this particular fish was put off to the following year.<sup>84</sup>

Fish also act as repositories for sins. At Luang Prabang small fish are caught to be sold during the Lao New Year's celebration and then released into the Mekong, in the hope that they carry the purchaser's sins away with them. Fishing is done with nets, traps, poles and dams, some of which are fairly elaborate. Not all Lao fishing is done in streams, for when the rice fields flood during the early part of the rainy season, a good part of the village, particularly the women and children, can be seen casting nets in the fields. The children appear to take this as a game and the adults enjoy themselves also. According to one explanation, the

fish are disturbed and often killed by the plowing of the flooded fields. The villagers gather them after they rise to the surface.

Fishing might be regarded as going counter to Buddhist doctrine forbidding the taking of life, but the Lao rationalize their fishing, which is as much for pleasure as food, by saying that they merely take the fish out of the water: "If it dies, that is not my fault, I have not killed it." Some villagers make a slight differentiation between animal and fish life, which permits them to spear and club fish. Buddhist monks and devout laymen abstain from killing in any form.

Those Khmu who live along streams also do some fishing, and it plays a minor role in the economy of the Lamet (Izikowitz 1951:174-77). Neither group, however, is able to use pirogues.

Although fishing does not appear to be of great importance to the Meo of Luang Prabang Province, it has been observed in other Meo areas:

"In the evening after dinner, the young people like to go fishing and look half through the night for fish under the rocks. One can see weirs at the foot of all waterfalls...Community fishing in the villages usually takes place at the beginning of summer, when they set up dams in the water courses in order to put the rice fields on the mountain slopes under water. The Meo then poison the fish with the help of the bark and leaves of certain trees."<sup>86</sup>

Fishing occurs among the Meo of northern Thailand, where poisons as well as hooks are used. They also construct weirs and catch fish with their hands. The most important fishing season is during the dry period, after the harvest, when they often hike for several days to reach a suitable spot. The Akha fish to a lesser extent.<sup>87</sup>

In contrast to fishing, hunting figures negligibly among most



Lao groups. It is not mentioned as an economic activity in studies of Lao and related Thai village economies, nor did any Lao village informant volunteer information on the subject. This may in part be related to Buddhist beliefs. However, many Lao officials, most of them formally devout Buddhists, possess rifles and shotguns and take great pleasure in hunting as a sport.

There are many strong folk beliefs that tend to discourage hunting, but they evidently do not influence the westernized elite, some of whom keep animal trophies in their homes, apparently not fearing the phi.

Among the Khmu, Lamet, Akha, Meo and other mountain peoples in Laos, hunting is a significant supplementary economic activity. An idea of different types of hunting practices can be gained from this Khmu description:<sup>88</sup>

"The hunter has a gun and goes wandering shooting animals in the forest. When the fifth month arrives, he goes and waits at the water-hole where different kinds of deer come down to drink. We take our guns, our cross-bows, and shoot them. All kinds of animals come down to drink. We take our cross-bows and shoot birds, chipmunks, /wild/chickens, pigeons, monkeys and gibbons. We take our guns and shoot big animals -- deer, wild boar -- so that those who live in /up-country/ village have more than enough to eat. When the rainy season comes we wander around hunting deer and elephant.

"When we are tired of traveling we return home and dispose of this meat. There are those who buy and there are those who ask for this meat free. The house of the hunter is the one where people want to come and stay. If he is going to go hunt far away in the forest, he takes two or three people with him as bearers. He takes rice to eat, chili and salt. If he stalks and shoots an animal and it doesn't die, then it is necessary to stay in the forest two or three nights. If he shoots and gets game such as a deer, he takes the antlers and sells them. Those who are master hunters do not have houses or rice fields. They hunt all the time which is very hard. Some people have enough to fill their wives' and childrens' mouths this way. People who live in the country

"have no place to buy, no place to sell. All you can do is to look for food intelligently. Those who do not know how to do this go hungry.

"If there are a lot of people and they know there are a number of animals in a certain abandoned field, they say to each other, "Call the dogs," and they take them along. Those who have dogs drive, and the others lie in ambush. It is necessary to make a noise, to cry, to shout, and to spread out and surround the field. Shout and move toward the group which is waiting in ambush. The animal tries to slip away and the waiting people take a gun and shoot. When the animals have been killed, they return to the village and divide the meat in equal portions, a portion for each person, each gun and each dog.<sup>89</sup>

"If you are going to hunt wild boar, either a herd or a single one, a person or two takes dogs and a gun and traces the track of the animal. When he is close by, the dog finds the boar and barks. The man shoots. Sometimes the animal charges him and vigorously attacks the man and dog. Many people die because of wild boar, and sometimes hunters shoot each other."<sup>90</sup>

The Khmu recitation continues with a description of the distribution of meat:

"Brothers and sisters of the same parents with the same ancestors and same family love each other. When a person gets some meat -- wild boar, deer, an animal shot with a gun, or an animal caught in a spear trap, whatever it may be, he performs the custom of dividing the meat. The meat is distributed among all the houses, wherever there is an older or younger sibling or a blood brother. Older brothers and father's older brothers eat the shoulder meat. Younger brothers eat the hind quarters. The headman eats the fillet. /Classificatory/ brothers and in-laws eat the haunch.<sup>91</sup> When we marry unsuitably we are doing violence to this distribution custom. If anyone does not get meat according to this pattern, then that person is eligible for marriage."

Lamet hunting techniques contrast in certain ways with those of the Khmu. Much of the Lamet meat is obtained by hunting, but in comparison with other sources of food, meat plays a minor role in the everyday diet. The Lamet catch most wild game by means of traps, while less is obtained by hunting with the crossbow. Dogs are not used, and organized hunting does not seem to exist, nor does hunting

with nets. Hunting with the crossbow, considered a noble sport, is used only for smaller animals such as birds, squirrels and rats.

Like agriculture, hunting is a sacred activity and there are many rites connected with it. The crossbow is believed to have a spirit which is offered a sacrifice by using blood to fasten a feather on the tip of the nose of the bar. This insures that the arrow will hit its mark. The Lamet formerly used guns which they bought from the Chinese or Thai. Sacrifice to the forest spirit is made on the spot where an animal has been trapped, and when this has been done, the game is carried back to the village. A ten-day feast occurs when a gaur is caught. Bits of meat are sacrificed, and the people sing and drink.<sup>93</sup>

Meo hunting techniques are distinctive due in part to the more mountainous environment. They use traps chiefly for birds and rodents. While they strongly prefer to hunt with their own hand-made guns,<sup>94</sup> they appear to be the only group in northern Laos which still uses poisoned arrows. The Meo also seem to do less co-operative hunting than the Khmu, but they do use dogs to assist them.

The Xieng Khouang Meo hunt bears and tigers in addition to other game. This is done in part to protect the crops, for bears in particular are quite destructive during the rice and corn harvests.<sup>95</sup>

Lejonquiere observes, "The Meo do not hunt regularly in order to gain their livelihood, but they are nevertheless skilled hunters. They use a gun which is similar to the one used by the Man /Yao/,

and they manufacture these guns just as they produce their own powder."<sup>96</sup> Savine writes, "Their chief game is the wild boar, the bear and the stag. They hunt the stag in the mountains which they burn every year. The stag comes regularly to eat the young sprouts under the ashes. The Meo lure it with a piece of salt....small game is shot with the crossbow."<sup>97</sup>

In northern Thailand (Bernatzik: 339-350) the Meo hunt all year round and particularly after the harvest has been brought in. Since the Meo are fond of hunting they will sometimes abandon work in the fields to pursue a large animal such as an elephant. They usually stalk their game in groups of three men who remain together so that they can help each other if an emergency arises. This is necessary because the Meo guns are usually capable of wounding rather than killing.

The Akha usually hunt in larger groups and use dogs, but do not pursue large game. Beaters are used to drive the game in the direction of the hidden hunters armed with rifles and cross-bows. They also use nets to catch birds, as well as traps for small animals and rodents.<sup>98</sup>

#### Livestock Raising

In northern and central Laos there are no groups which can be called hunting and gathering or pastoral peoples<sup>98</sup> -- that is, all groups gain their living primarily from agriculture. However, they all possess livestock. Aboriginal groups such as the Khmu and Lamet appear to have the poorest economy in this regard, while livestock raising is much more developed among the Lao and especially,



the Meo.

The Meo have the greatest variety of livestock, including, for example, work and ceremonial elephants. On the other hand the Meo raise horses which are relatively rare among the Lao, and the quality of their cattle and pigs is also generally considered to be better. Poultry is kept by all groups.

In the Vientiane area eighty percent of the Lao households own at least four chickens, with a few owning as many as sixty. Around Paksan, however, only fifteen percent of the households keep chickens. In all cases they are raised as a small cash product and are consumed only on special occasions. The eggs represent most of the income. Ducks are raised by ten percent of the households, primarily for eggs. Cholera attacks the ducks nearly every rainy season and as a result, most farmers have given up raising them.<sup>99</sup>

In one village along the Nam Ou in Luang Prabang Province fifty households raise about 600 ducks whose eggs are exported to the royal capital.<sup>100</sup> Egg production is not at all systematized; the chickens lay their eggs anywhere and the people often have to go search for them. In view of this, it is not surprising that about fifty percent of the eggs available on the Luang Prabang town market turn out to be rotten, although this may also reflect a Lao dietary preference. As might further be expected, the chickens themselves are undersized when compared to western varieties, and their meat is very tough. They are also subject to epidemics, and in 1956 most chickens in Khmu villages near Luang Prabang died.

As one way of avoiding these problems, domestic fowl are often

raised on pile-coops. In this way they cannot destroy the garden seed beds and are quite dry and warm during the muddy rainy season.

Because of their belief in not taking life in any form, some Lao will not kill chickens, but will ask a non-Lao such as a Khmu tribesman to do it for them.

Two or three pigs are raised by about forty percent of the households in Vientiane. The villagers claim that there is never enough food for these animals and that during the rainy season the muddy ground makes it difficult for the animals to forage for themselves. Half of the households possess one buffalo. Twenty percent have two, and wealthier farmers three or more. The buffalo are used primarily for rice cultivation, and occasionally are sold for slaughter in the capital.<sup>101</sup> Those households with wagons also possess two oxen for pulling it.<sup>102</sup> (Prior to 1938 these wagons were the sole means of land transportation). Since animal milk is traditionally not used by peoples east of India, it is interesting to note the relatively large quantities of canned milk, both evaporated and powdered, purchased by Lao villagers for their small children.<sup>103</sup>

Buffalo are also kept by all groups, although they are much less common among the Khmu and especially the Meo. In the case of the former, it is partly because of their impoverished economic status; also, due to their relatively small extent of irrigated cultivation they have little real need for this type of livestock. Buffalo are however, highly desirable for Khmu sacrifice. The Meo seem to concentrate more on the keeping of cattle, which are better adapted to the mountainous terrain. As for the Vientiane Lao in the Luang Pra-

bang area varies from household to household, and greatly between villages. In some villages almost every home has at least one buffalo, and in others the percentage is very small, as for example, in a particular village near the royal capital where two households out of seventy kept buffalo. The disproportionate numbers of buffalo kept by individual households is illustrated in another village, where out of some twenty households four owned buffalo with a 7-2-1-1 distribution respectively.

The figures given in Table 21 for Nam Tha Province seem to indicate that buffalo at least are kept in greater numbers than in the Luang Prabang area.

Villagers claim that during the Vietminh war soldiers confiscated much of their livestock for food. Lack of adequate pasturage is another reason cited by some villagers for the paucity of buffalo in the Luang Prabang area. Although neighboring Khmu are willing to pasture the Lao villager's buffalo for 80-100 kip a month<sup>104</sup> when they are not being used during the plowing or harvesting seasons, most people felt this was too high a price to pay. As a result, some villagers around the royal capital purchase a buffalo when they are ready to do their plowing and then sell it to the local Vietnamese slaughterhouse when they are finished with it after a month or so.

Among the Lao particularly, but also among the Khmu, the buffalo are kept under the house. Among the Meo, whose dwellings are built directly on the ground, pigs and buffalo are housed in pens which adjoin the house, although a village may construct separate corrals

for cattle and horses.

After pigs, cattle are second in importance among the Meo, and are raised primarily for meat. In some areas they are also used as pack animals. The milk is never utilized. Meo cattle are of high quality and are given great care, as are their corn-fed pigs. Over sixty years ago Reinach remarked (1901:406) with reference to Meo livestock: "He raises fine poultry, pigs, oxen, goats and horses with particular care and success," so that this reputation is evidently not of recent origin.<sup>105</sup>

Bernatzik emphasizes that the raising of pigs among the Meo is not only as a food source, but also because they are the most important sacrificial animals. There is evidently some cross breeding with the wild species. They are fed refuse and cooked corn in the morning and evening, as well as the stems of wild banana. More commonly however, pigs are scavengers who aid the chickens in keeping the village clean.

Chicken and pigs provide all groups with their most important sources of domesticated meat. A certain number are sold to supply the needs of the town market, but they are chiefly raised for home consumption. Hunting must also be taken into account as an important source of meat, particularly among the Meo and Khmu. Buffalo meat is sometimes eaten after an animal has died a natural death.

In addition to these common types of livestock, most Meo families keep horses which they use for beasts of burden. They are usually larger than the typical horse in Southeast Asia, and are



fed on corn and bamboo shoots as well as grass. The Meo are proud of their animals, care for them fondly, train them well and produce a creature with the surefootedness and stamina necessary on the rugged trails.<sup>106</sup>

The Meo also have a characteristic dog with a woolly coat and no tail, which is kept as a pet and is also sometimes used for purposes of sacrifice, particularly in connection with the ceremony of the guardian spirit. Cats are also kept. Sometimes goats are raised by the Meo and Khmu and are often used for sacrificial purposes. Elephants are kept by certain Lao, and there is a small herd retained in a Khmu village near the royal capital and used on ceremonial occasions. Elephants are brought in from Sayaboury Province from time to time to haul teak logs up from the river. In the latter province in particular, they are the usual means of transport through the jungle.

The Phou Noi of Phong Saly raise bees in hollow logs near their homes,<sup>107</sup> but it is not known how many other groups follow this practice.

#### Livestock Sacrifice

Having sketched the basic picture of livestock raising in central and northern Laos, it must now be pointed out that except for a few strictly utilitarian functions -- such as the use of buffalo for plowing paddy fields, and of horses and elephants for transport -- the various types of livestock are important chiefly for religious and ceremonial purposes. Use as a source of food is distinctly secondary.

Among such groups as the Khmu, Kha Ko or Yao the situation is sometimes reversed; that is, meat is desired, so a sacrifice is made. Obviously these two factors are closely related and it is illusory to seek a primary cause. Belief in the various forms of phi strong among all groups, makes heavy demands on them.<sup>108</sup> In Table 20 some of the occasions when the Lao, Khmu, Lamet, Akha and Meo sacrifice their livestock and poultry, are briefly summarized. The instances cited here are by no means an exhaustive list.

Poultry are frequently regarded as sacrificial objects:

"The Lamet have no knowledge of breeding of chickens. They set most value on a handsome cock with beautiful tail feathers suitable for sacrifice. The color of the cocks is of importance, and the Lamet do not care to sell them for they are needed for the numerous sacrifices. Hens are only fit for the less important sacrifices." <sup>109</sup>

The following two texts dealing with buffalo sacrifices provide an idea of their significance to the Khmu. The first is performed to dedicate a new house.<sup>110</sup>

#### Killing a Buffalo to Offer to the House Spirit.

The house spirit makes it known that he wants to eat buffalo. There are no buffalo to be killed. We pray to the spirits to delay the ceremony and we go out and look for money and /more/ money. Finally we go and buy a buffalo. We return and gather wood for a house.<sup>111</sup> We build a house. We take the buffalo and fasten it to the post of this house and pray to the spirits. Then somebody takes an axe and cuts the back of the buffalo's neck. Another person takes a knife and cuts the hocks. When the buffalo is dead, the meat is sliced and cooked. After it is cooked the meat is given to the house spirit. Then we eat and drink alcohol at the same time. Then we sleep until morning. In the morning we slice up the hind legs and forelegs of the buffalo and perform the custom of distributing the meat.

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When the haw /forest/ spirit wants to eat buffalo, we go and search, wander around and collect money from each other. When

the money is collected we go and buy a buffalo. When the buffalo has been bought we tell each other to prepare alcohol. When that has been done and the day /of the sacrifice/ comes, we tell each other to take care of the forest spirit. We go to the house of the haw spirit and tie the buffalo's head to a tree and have someone take an axe and cut his neck and then take a knife and cut his hocks. When the buffalo is dead, the people who are making the offering pray to the spirits. Then we cut up the buffalo and cook it and offer it to the spirits on the platform. When the meat has been offered to the spirit, we return and eat and drink. Afterwards we do not work for three days. Then we return to work in the rice fields.

Although religious motives are of primary significance, they cannot be separated from the social significance of feasts and as indicated, simply the desire to eat meat for which a supernatural rationalization is provided. But as the following cases clearly show religious imperatives are the crucial determinant and often impose harsh obligations on the Khmu. When they are ill they sacrifice a chicken. The feast for the spirit of the village is held in the sixth lunar month. Chickens are offered by individual villagers, while a pig, ox or buffalo are bought by taking up a collection. The flesh is offered raw and when the flies begin to buzz around the offerings, they believe that the spirit has finished partaking of them. Then a feast is held. If there is any food left over, it can not be taken home because it is felt that the spirit will cause illness. In addition, there are forest and field spirits. If a person believes that he has been afflicted by a spirit at any place, then an offering of boiled chicken and liquor is made.

In the event of death, the host provides liquor and food for the three nights that the corpse is kept in the house. All the animals of the deceased are slaughtered; if there are children the animals

are first divided among them and then killed to feed the guests. A similar situation exists among the Kha Ko where the largest hog owned by the household is intended as an offering to the soul of the aged head of the household on the day after his death. On the day of death the four biggest pigs of the Khmu household are slaughtered, as well as a large number of chickens. In richer homes oxen, buffalo, goats, dogs and pigs are killed. At the death of a woman, child, or young man, an ox or pig is killed depending on the importance of the person and the economic status of the head of the family. If the head of the village dies, the largest pig owned by every family is killed. In some villages a collection is made to buy oxen, buffalo, goats, pigs and black dogs to offer to the soul of the deceased.<sup>112</sup> The Khmu will even go into debt to obtain money to buy livestock for sacrifice, sometimes turning a son or a daughter over to a creditor to work off the debt. This continues to exist although outlawed by the government.

Among the Lamet too, funerals are a great expense; the number of livestock sacrificed depending on the family's wealth.<sup>113</sup> Upon the death of a poor Meo, only a few pigs and some chickens are offered, while if a rich man dies one or more cows or buffalo are sacrificed.

Sacrifices of livestock are made on the occasions of birth, marriage, death, sickness, ill fortune, sowing and harvest, as well as to propitiate the spirits of the house, village, village entrance and the forest. Types of fowl and livestock sacrificed include chickens, buffalo, pigs, cattle and occasionally dogs among the Meo. As far as is known, the Meo do not sacrifice horses, nor the Lao



elephants. Significant sacrificial ceremonies take place among all ethnic groups, although the type of animals and the ceremonies vary.

Buffalo sacrifice has been practiced by the Lao of both Vientiane and Luang Prabang. It has the function of both propitiating the spirits and controlling rainfall. This ceremony occurs before the beginning of the monsoon rains. In certain regions of northern Laos there is active collaboration in sacrificial ceremonies among the Lao, Kha peoples and tribal Tai, and it is possible that the cultural influence of aboriginal peoples is a factor in Lao buffalo sacrifice.<sup>115</sup>

Sacrifice is also institutionalized among the Black Tai in Nam Tha, with offerings to the god of the doil carefully observed, and sacrifices to the guardian spirit of the village, for which a pig and a buffalo are slaughtered. A duck is offered to the spirit of the water; a dog for the spirit of the forest; a chicken for the spirit of heaven and also for the spirit that guards the entrance to the village. A tray of food is offered for errant spirits and other phi in general.<sup>116</sup>

There is no precise data available for any one group on the annual cost of these ceremonies. One Lao official, however, made these estimates for sacrifices to the village spirit during the course of a year, as a result of his conversations with people in two Lao villages in Luang Prabang district. In the first village, the forty-four households each sacrificed two chickens which, at the then current market rates, amounted to an expense of about 8,000 kip; in the other village of approximately similar size, two buffalo were sac-

rificed by the village as a whole, each buffalo valued at 4-5000 kip.<sup>117</sup> These sacrifices represent only those to the phi of the village, for which the village population shared expenses, and not those to spirits involved in individual personal matters. Since the Lao and other peoples of northern Laos can hardly be termed wealthy in poultry and livestock, it is not difficult to see that the phi exert a considerable drain on their economy.

It has been noted for Kha villages that: "...there are hardly any animals. They have killed them all for sacrifices; even if they have to starve afterwards they will have to work to buy some more. There are periods when every chicken in the village must be killed for sacrifice, and they vie with each other because they can thus appease the spirits by selfless /denial/." <sup>118</sup>

Some missionaries maintain that Christianized Meo and Khmu villages have become more prosperous since they have stopped sacrificing to the phi. Inversely the desire to be freed of sacrifices is also cited for a reason for conversion to Christianity.

Thus, although the inhabitants of central and northern Laos do eat meat and fowl as a result of their sacrifices, the occasion is not determined primarily by dietary needs -- any discussion of domestic livestock in Laos cannot lack reference to its sacrificial significance. One observer goes so far as to say, in speaking of the Meo, "One should certainly not say they raise livestock; rather they keep animals chiefly for the purpose of sacrifice." (This would not apply to their horses, used exclusively for transport). Izikowitz writes that the owning of buffalo, primarily for the purpose of

sacrifice, is the highest aim of the Lamet.<sup>119</sup>

The element of prestige must also be considered. Buffalo definitely appear to be a wealth symbol among Lao villagers, while cattle play the same role among the Meo. Some Lao also keep cattle, particularly in the area of the Vientiane Plain and in the capital city itself, where these prestige symbols can be seen grazing in front of the National Assembly building.

Government Induced Change in Agriculture in China and North Vietnam.

In this concluding chapter on the traditional rural economies in northern and central Laos, it might be well to take a brief look at the situation in neighboring China and North Vietnam to see how those countries have attempted to deal with certain crucial agricultural problems, particularly the matter of hai cultivation as it pertains to peoples culturally similar to those living in Laos. A major difficulty in this connection is to obtain reliable data. Generally speaking, Communist states make available only information which reflects to their advantage. Although much of the information is of a bombastic and propagandistic nature, criticism is permitted and often encouraged when it deals with the implementation of programs already decided upon. No discussion of broad policies previously determined is usually permitted. Nevertheless, the importance of developments occurring on the borders of Laos, cannot be overemphasized. It also appears likely that Communist influence in Laos will increase in the future.

The following is an abbreviated account of the resettlement

of a group of Yao villagers.<sup>120</sup>

Looking down from the high hill to the foot of the mountains how envious we were of the green rice fields of the Tay /Tai/ people.<sup>121</sup> How we dreamed of the day when we also could live in the merry hamlets below. We did not want to stay at home, even if it did mean a long day's journey to go to the village below on market days.

More than four years ago, families of the Man /Yao/ minority people of Cong Hoa hamlet lived a lonely, isolated life on the steep slopes of the three mountains of Na Nghe, Cam Nam and Can Khao....

Life on the highlands in these parts was very miserable. The people toiled hard from morning to night, yet still could not get enough to eat.

Every year the Man people had to move higher still up the mountainsides to open up new land for cultivation.

It happened that the groves would not catch fire due to frequent rains, or that the paddy and maize were scorched by the burning sun. Then they had to feed on tubers or roots dug up in the forests to live through the hard days. Added to all this was the serious damage done to their crops by wild beasts. Hunting is no pastime for the Man minority people, but a necessary measure to protect their crops.

Due to undernourishment, the health of the adults deteriorated constantly, and the children were stunted and pale. Diseases were rife, rendering life still more gloomy.

The way to the village was steep and difficult. All year round, the villagers knew almost no other friend than the wind wailing through the forest, the rustling of the stream down the mountain and the permanent white veil of mist hanging over the majestic mountain ranges.

This is why the Man people in this hamlet have long nurtured the simple but bold desire: to go down the mountain to till the land in order to have a better life.

"Yes, the cadre is quite right! Just to hear it said is reassuring! But will there be enough land to till when we go down the mountain?"

"Who knows how to guide a buffalo in ploughing and harrowing? Are the Tay and Kinh /Vietnamese delta/ people really friendly toward the Man people?"

Such were the worries of the Man people.



Being well aware of the wretched life of the Man people, the Vietnam Lao Dong /Communist/ Party and the Government of the Democratic Republic in 1955 sent cadres to the mountains to persuade the Man to leave for the lowlands to earn a stable livelihood.

Being for many generations accustomed to an isolated life in the highlands, with customs and farming methods entirely different from those of the delta, and strong prejudices against other peoples as a result of the French "divide and rule" policy, the Man people could not help feeling some anxiety when making a decision which would totally change their life.

But finally they followed the cadres' advice and moved to the delta.

There are 13 families, more than 100 people in all, now living in Cong Hoa hamlet.

Only four years have passed, yet great changes have occurred in the life of the Man people. What surprised us when we visited them was the speed with which they have adjusted to life in the delta. We visited many houses of the two producers' teams Dan Chu and Khe Can. All were clean and well ordered. The hosts served us with boiled water, a thing never seen in the past in the highlands. As a result, the sickness rate has fallen rapidly.

The head of the hamlet guides us to the plots of land newly opened up by the people alongside national route number 3.

"Here in the past there was only wild grass, taller than a buffalo. It took several days of burning to get rid of it. The Tay have taught us how to plough and harrow and in all ways helped us in our work. Before the land was ready for cultivation, we grew maize on the hill. Of course, there were problems in the first days, but everything has become better and now famine is a thing of the past, I can assure you of that."

Besides rice fields, the Man people have also opened up scores of mu of land in the surroundings to grow manioc, groundnut, soya and other bean crops.

To help the people to get sufficient water to expand the tilled area, the Water Conservancy Service of Thai Nguyen Province has built an irrigation canal to bring water from the stream to the fields.

The state trade shops have also undertaken to buy firewood gathered by the people to help them over the pre-harvest days.

As we have indicated, in Laos a number of Meo and Yao have voluntarily settled in valleys and undertaken irrigated rice farming, often with state subsidies, but there is no over-all integrated government policy. Although the North Vietnamese government appears to have a clear policy, its complete implementation is another matter.

An interesting indirect indication of the persistence of traditional agricultural and cultural patterns is found in the following statement:

"The Meo people grow much opium. Formerly sold to the French for opium it is now sold to the State store, at a much higher price than in the past. It is now used medically. Many of the older Meo people still smoke it -- it is good for the health, they say." 122

In a discussion of a series of political and social changes which have allegedly been brought about by the Communists, we read,

"It is typical of the North-West that a large proportion of the population live a long way from the roads; the Meos on the mountaintops usually, then the Man people at a slightly lower level. Many other minorities, though in the valleys are a long way from the roads." 123

These quotations apply to the Tai-Meo autonomous area which borders on the Laos province of Sam Neua. It is possible that the resettled village described above which happens to border the main road through the area, may be a demonstration or model village.

Despite political conflicts North Vietnam has been strongly influenced by China. We can gain further insights into the problem of agricultural resettlement if we look at the situation in neighboring Yunnan and other areas where there are large Tai, Meo and

Yao minority groups. In a popular review article discussing progress of national minorities, we get the following picture for the Lisu: <sup>124</sup>

"In the southwest, many national minorities have moved from feudal, slave and even primitive clan societies directly to socialism. The Lisu people inhabiting the Nu River valley in Yunnan Province is one of them. For centuries they lived deep in the mountains in a very primitive state of society. They made a living by hunting or by cultivating small patches of land on the mountain slopes. Liberation gave them a direct transition to socialism. In 1954 the Nukiang Lisu People's Autonomous Chou was established. In 1956 the first groups of agricultural cooperatives were set up. In 1958 the people's communes were established."

The next account, "Three Years in Hsishuangpanna Tai Autonomous Chou," goes into more detail. <sup>125</sup>

The 23rd of last January was the third anniversary of the founding of the Hsishuangpanna Tai Autonomous Chou, the first region in the frontier province of Yunnan that was granted autonomous government.

Hsishuangpanna is known as the "Granary of South Yunnan" but under the long reactionary rule and oppression in the past, the people of various nationalities could only use rough and coarse methods in their tilling, and some mountainous areas still lingered on in the stage of "sowing without plowing, and by cutting down the old stalks and burning them." The result was that the people in the "granary" could not keep themselves from starvation.

After the People's Committee of the autonomous chou was set up, its first central task was to unite the people of various nationalities and to develop agricultural production. In a span of three years, it has led the peasants in building and repairing more than 4,700 small irrigation works, and irrigating some 50,000 mou of fields that had been allowed to lie fallow. In some mountainous regions inhabited by Hani and Yao minorities, paddy fields and draft cattle appeared for the first time. The People's Committee also loaned to the peasants of various nationalities over 900,000 yuan's worth of draft animals, farm implements, seeds and provisions; and issued production subsidy funds and various relief monies amounting to more than 360,000 yuan, enabling the autonomous chou to raise agricultural production gradually. The grain output of the whole chou increased by upwards

of 20 percent in three years; in some places the increase was even greater."

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This evangelical approach for the propagation of what are considered modern farming methods and the almost magical transformations claimed are not, of course, limited to the abandonment of swidden agriculture in favor of irrigated rice cultivation. Involved in the changes of method of cultivation are a whole complex of social practices and strongly held traditional values, including the division of labor and the basic religious beliefs of the culture. The Communists clearly state the relationship between Marxist philosophy and their development programs.

An important matter is increasing the participation of women in all phases of agricultural work, ranging from plowing and transplanting rice to the spreading of manure. On August 21, 1958, the New China News Agency released the following account of "Minority Nationalities Dispel Superstition and Break Old Customs," in which was included an account of the Hsishuangpanna Tai Autonomous area mentioned above. <sup>126</sup>

...a story is going the rounds telling how a girl named Wang Ai-yang dispels the mistaken idea that women cannot plow the land. Wang Ai-yang is an assistant secretary of the Young Communist League. Coming back from a conference of youth representatives, she decided to respond to the Party's call and took the lead in swinging the plow side by side with men. Conservative elements derided her, stating that crops grown on land plowed by a woman "would not be eaten even by Buddhas" and that if women could handle this work, there would be no point in having men in the first place. She brushed aside their derision and worked on. She plowed deep and obtained 15 "shoulder poles" of grain more than the neighboring land. The CCP hsien committee awarded her a red flag, and asked all other women of the Tai nationality to follow her example. An increasing number of women began this year to



learn to plow, and 360 of them in nine hsiang were reported to have mastered the technique."

The Communists favor the participation of women in all agricultural tasks at least in part because it ensures a more complete utilization of the labor resources in the society. These actions, however, may well lower the prestige of certain tasks such as plowing.

Extensive mention has been made in this chapter of the significance of belief in the phi and the complexes of livestock sacrifice which are associated with this culture trait. The ceremonies involved with harvesting rice and the offerings made to the "soul of the rice" also play an important part in the life of the Lao and many of the tribal peoples. The Communist Chinese government has attempted to modify some of these customs among the Tai and Meo peoples, as the following accounts show.

In the Menghai district of the Hsishuangpanna Tai Nationality Chou there were farms which could only be cultivated when the rainy season came. During the big leap forward this year /1958/, peasants of Tai nationality in the entire district built an irrigation project carrying water to all the farms. When the water channel was built to Mengfu village, it had to pass through the Dragon mountain where the dead were buried. According to traditional custom, even a single piece of grass and wood could not be removed, otherwise disasters would fall on the entire village. The Tai people of the village held a debate on this question. The conservative said: "The old rule of our nationality forbids anyone from removing anything from Dragon Mountain." The progressive replied: For several hundred years we have not removed anything from it, but what good has this brought us? When irrigation channels are built, more grain can be harvested, and our children will enjoy prosperity." The conservative retorted: "If we offend the spirits of the mountain disasters will fall upon us. Who takes the responsibility then?" And the progressive refuted him by saying, "During the past several hundred years we have not removed anything from the mountain, but did the people not suffer from disease and die of it? Now sick people are treated in the government hos-

pital. What should we be afraid of?" The oppositionists then became dumb. The masses said: "Water is most important and our lives can be better off only when production is developed." The irrigation channel was built across the mountain, and thus new ideas triumphed.

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Even the most primitive and backward Kawa nationals<sup>127</sup> are now awakened and march forward. When Chia hsiang of the Ts'angyuan Kawa Nationality Autonomous Hsien decided to discard the primitive mode of production and open up paddy fields, the people were told that "to open up paddy fields would involve our being beaten to death by the ghost."<sup>128</sup> But some of the braver people with the determination that "a beating by a ghost is not a thing to fear, because food is more important," took the lead in opening up the fields. The masses, seeing that they were not beaten by the ghosts, also went one after another to the farms. Since this year, more than 1,000 mou of paddy fields were opened up in the entire hsiang. Once the Kawa people come to recognize their strength, they will not pin their hopes on the gods and spirits. Kawa people in many villages have stopped killing animals for offerings and have learned to use them for farming.<sup>129</sup>

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Specific statistics on sacrifice, their economic cost, and subsequent efforts to change the practices associated with this behavior are given in an article called, "A Major Victory for Atheism -- Smashing Gods and Spirits, The Struggle of the Aini /Tai group/ Nationality in Kelangho Ch'u Menghai Hsien, Yunnan Province."

The Aini nationality...was much given to the worship of gods and spirits in the past. For family it had a "family god" and for fields a "field god" or "land god." These gods were regarded as the protectors of men. Pigs and chickens were killed as offerings to them on festivals twelve times a year and at "ritual performances." The hills, streams, meadows and trees; natural phenomena as wind, rain, thunder and lightning; wild beasts such as tigers, leopards and domesticated animals such as oxen and horses; men's illness and death were linked with the work of spirits. To ward off devils, a "lung-pa" gate was erected in front and at the rear of each stockade. The structure was believed to have the usefulness of keeping off evil spirits. Whenever some untoward events happened such as a storm, hail, fire, death, an insect plague...

the inhabitants believed that the spirits were causing trouble. To escape the devils, the inhabitants inside would not venture out of the "lung-pa" gate. These were called "lung days." On these days they also killed chickens, pigs or oxen to offer as sacrifices....

The working people each year handed out a large sum of money to offer sacrifices to the gods and spirits, which rendered it more difficult for them to extricate themselves from the quagmire of poverty. They resorted to loans and worked as domestic laborers, enduring the exploitation of the landlord class. According to the estimate of a poor peasant named Jih Yu, his outlay for superstition in 1949 amounted to one-fourth of his total income, which was a very common case. Some people spent more than half of their income for the sake of superstition. Statistics show that over 300,000 working days were wasted in the whole ch'u last year on account of "festivals," "lung days," and "ritual performances." Over 5,000 pigs, 7,000 chickens, 500 dogs and 100 sheep were killed each year as offerings, and over 10,000 yen spent.<sup>130</sup>

The class basis of superstitious beliefs was gradually eliminated in 1958, and the prestige and influence of the Party rose to a great height in this year. A troop of anti-superstition activists emerged in the course of the class struggle, the production struggle and various anti-superstition campaigns over the past several years. They related their personal experience of breaching the superstitious traditions handed down from their ancestors without incurring any calamity, and bolstered the awakening masses in the campaign to stamp out beliefs in gods and spirits.

During the free criticism and debate, the masses exposed not a few cases of the landlord class exploiting the working people, sabotaging production and wrecking the Party line through the utilization of superstition. The superstitious customs and practices of the Aini people in Kelangho ch'u have been completely obliterated following the campaign. The people have dismantled the "lung-pa" gate, tossed away family gods, reclaimed the wasteland on the Lung Hill, the earth of which they never dared touch before, collected manure, launched production in a big way and reaped the most bountiful harvest in their history.

The people remarked, "For several thousand years, generation after generation, we believed in gods and spirits and offered sacrifices without ever being able to rear our head. Last year we listened to Chairman Mao and no longer believed in gods and spirits. Now we rely on the Communist Party, the people's commune and ourselves for our livelihood." This is the folk song popular with the Aini people:

Pull down the Lung-pa gate  
Believe not in gods or fate.

Hills become a paradise,  
Production shows a big rise,<sup>131</sup>

The propagandist fervor of these accounts is, of course, obvious, and although we may question the accuracy of certain statements and statistics, these are in a sense minor matters. The important thing here is the ultimate intention of remaking according to a preconceived pattern, the lives of the people concerned. The Communist attitude toward the cultures of the minority peoples seems to parallel that of old-fashioned Christian missionaries at many points.

#### Lao Government Planning

One of the tragedies of the Laos situation has been that the government has never defined, even in theory, any long-range program of resettlement of the tribal peoples. The Department of Water and Forests has evidenced concern, but their interest has been limited to the preservation of the forests. A speech by the Lao Commissioner for Rural Affairs at a UNESCO International Conference on "Social Research and Problems of Rural Life in Southeast Asia" does not even mention this problem. The closest approximations to a policy statement are the comments of the former Lao Director of Social Welfare who defined "resettlement" as a long-term program consisting of the following six steps: 1/ psychological preparation for valley life and wet-rice cultivation; 2/ temporary subsidization during the transitional period; 3/ technical advice and assistance; 4/ schools with instruction in Lao; 5/ medical aid in the form of dispensaries; and 6/ conversion to

Buddhism.<sup>132</sup>



The first step has been the subject of intermittent propaganda dispensed by various government rural aid programs, in some cases closely associated with the military and in all cases almost completely financed by foreign aid, largely American. With regard to points 2 - 5, performance has been spotty, with lack of coordination by the various government agencies concerned. A few cases of direct subsidies for resettlement exist and some technical advice has been given; a few schools have been built, but health facilities remain nonexistent in most areas. Sporadic attempts have been made over the past few centuries by Lao monks, to convert tribal peoples to Buddhism; in no sense can they be considered part of a government program in the way that Communism as a secular faith relates to Chinese and North Vietnam efforts. What is implied here is a not-so-subtle Laotianization to be linked up with a change in agricultural practices. This position appears unintentionally designed to increase opposition among the mountain peoples even if the subsidies and health services might be welcomed. The Communist authorities also aim for assimilation and the destruction of religious practices which they consider to interfere with the process. In their mode of operation they do, however, make explicit concessions to cultural distinctiveness in terms of using the local language and implementing these programs through trained officials of local origin.

An example of difficulties involved in Lao government attempts at resettlement is given in the case of a comparatively small group of 2,000 Black Tai refugees from North Vietnam. They orig-

inally settled in Xieng Khouang in 1955 on the advice of the Vientiane government. Promised funds for an irrigation dam never materialized, and the chief of the group petitioned the government to transfer them. Subsequently they were moved to an area north of Vientiane town. The government cleared some land for houses; the American aid mission, acting through the government, made available 40 tons of rice, and the French government contributed money for agricultural tools. But before the job was completed the government withdrew its bulldozing equipment, in order rumor had it, to work on a road leading to the home of a high government official. In any case the Black Tai were unable to make their traditional wet rice fields and so utilized slash and burn techniques. A number of men became small-scale merchants and some of the women went to work as domestics in Vientiane.

In contrast was the quick resettlement of about 200 Lao who had returned to their ancestral homes in 1957. They had originally migrated in the eighteenth century, due to warfare, to the area of the Burma-Laos-Thailand border, and current conflicts among the Karen forced them to retrace their steps. Undoubtedly ethnic factors were involved in their quick resettlement in Laos and in the friendly help extended by the government. In the case of the Black Tai the government claimed that the Black Tai were unwilling to contribute to the cost of their own resettlement. Perhaps more significant was a lack of confidence and understanding between the two groups which, combined with the lack of a clear program would be more than sufficient to defeat half-hearted

efforts.

In the near future the traditional techniques described in these pages for the Lao, as well as the Khmu, Tai and Meo will be subject to increasing external and internal pressures for change. The relationships between agriculture, livestock raising and religion on the one hand and politics on the other, seem destined to become much closer in Laos.

The government's Five Year Plan,<sup>133</sup> implemented with foreign technical and financial assistance, lists as major objectives in agriculture:

- 1/ Improvement in seed rice both with regard to yield and the standardization of its quality.
- 2/ Development of irrigation schemes to improve crop yields.
- 3/ Expansion of existing provincial services and agricultural experiment stations, and the establishing of new ones.
- 4/ Improvement and development of new methods of combating insects and other crop pests.
- 5/ Selection and improvement of fruit trees and related crops.
- 6/ Expansion of the area devoted to commercial crops such as coffee.
- 7/ Increase in the number of technically trained personnel.<sup>134</sup>
- 8/ It is also hoped that basic background information will be increased; included in this program is the development of a map of soil utilization.<sup>135</sup>

In the field of veterinary services are the following projects:

1/ A livestock census.<sup>136</sup>

2/ Improvement in measures for combating animal diseases and the expansion of vaccination programs. It is hoped to increase the number of vaccinators from 40 in 1958 to 90 in 1963.

3/ Development of two animal experiment stations, one in the Province of Vientiane and the other in Thakhek.

4/ Creation of a dairy herd in the vicinity of the city of Vientiane.<sup>137</sup>

5/ Expansion of work on the village level in the field of vaccination, treatment of animal diseases, improving species by selective castration, introduction of improved forage crops.

6/ The development of a corps of qualified personnel.<sup>138</sup>

Lacking sufficient trained personnel and financial resources to implement these programs, the government of Laos has had to look abroad for aid. This aid has come in the past from a variety of sources -- the United States, the Colombo Plan, France and the United Nations. The Food and Agricultural Organization has supplied a number of experts who have made surveys and recommendations, and in addition, French technicians have worked directly with officials in the Ministry of Agriculture. Largest financial support has been by the United States Operations Mission to Laos which has for several years maintained a separate agriculture division with experts in irrigation engineering, rice production, poultry breeding and veterinary medicine. The division's 1959 budget of \$301,000 included \$100,000 for improvement of livestock and poultry; \$70,000 for crop development, and \$53,000, \$50,000,



and \$28,000 respectively, for irrigation, agricultural extension and forest resources.

Similar activities have been carried on since 1956. An illustrated publication issued in English and Lao by USOM in 1959 summarized the aims of the agricultural program and the work completed as follows:

To encourage the growing of additional crops, and to provide supplemental water throughout the year, the Ministry of Agriculture, with American technical and economic assistance, is now completing the last of eight irrigation projects throughout Laos.

In Muong Phieng, Ban Ban /Xieng Khouang Province/, in the vicinity of Luang Prabang town, Ban Nephay, Khong, Thateng /Saravane Province/ and near Pakse, eight irrigation projects have been completed, providing an adequate year-round supply for a total of 3,740 hectares. The lands irrigated by these projects will support nearly 1,500 Lao families, and the projects at Muong Phieng and in Saravane can be expanded to irrigate an additional 1,500 hectares  
....<sup>139</sup>

In 1958 with the support of the American aid mission, a successful resettlement effort involving hundreds of Kha peoples was initiated in Ban Kan Si, Xieng Khoang Province. Many former hillside families cultivating hai patches were successfully resettled as rice paddy farmers. However, per family costs of this project have been high so that it does not seem economically feasible to continue this effort in the same pattern throughout Laos as sufficient initial capital is not available.

Instead, other alternatives are being explored, such as the introduction of new crops suitable for hillside farming which would not require as extensive burning of the forest cover. These include the growing of mushrooms on shady hillsides and schemes which would require farmers to plant and tend young conifers among their upland rice or potato fields, thereby producing an eventual timber crop.

The report continues,

To find ways to increase the supply of rice available to the people, the Department of Agriculture in 1956 established a rice experiment station outside Vientiane and, working closely with American technicians, began extensive tests with fertilization and purification of rice seed. Since that time, twelve tons of improved rice seed have been distributed to farmers throughout Laos, and

preliminary tests have shown a possible twenty percent increase in yield. About 500 tons of this variety were grown in Laos in 1958-59, and eleven other improved varieties are in the process of being tested.

Early in its program to develop the agricultural resources of Laos the Department of Agriculture began the revitalization of the coffee growing areas of the Bolovens Plateau /in southern Laos/. Once an important coffee growing area producing high quality Arabica coffee, the plateau had succumbed to the ravages of two wars and the rapid spread of the rust disease. With the help of American technicians, Lao agriculturists introduced four new coffee varieties which were not only rust-resistant, but of improved quality. Since then both coffee plants and seeds have been distributed to nurseries and to coffee growers in the Bolovens area....

To improve the meat available to the Lao citizen, the Department of Veterinary Service working with American livestock specialists, this year /1959/ imported forty purebred Berkshire hogs to establish a swine production farm. Since the establishment of the farm at Ban Dongdok /near Vientiane/, 20 boars have been distributed to villagers throughout Laos for breeding with the local variety of hog to produce a better quality animal adapted to the Lao environment. More than 100 pigs from the first litter have been placed in cooperating villages for upgrading local stock.

Meanwhile, Lao and American technicians are conducting a training program in animal vaccination to safeguard animals against sickness and disease, and to insure maximum effectiveness of the livestock program.

Three varieties of American poultry were brought into Laos in 1954 by the Lao Veterinary Service to upgrade both the quantity and the quality of eggs and meat provided by the local variety of chicken.

Since then poultry experiment stations have been established in Vientiane and Savannakhet, where chickens are being produced for distribution to Lao farmers to improve poultry for both producer and consumer.

Under supervision of the Lao Veterinary Service, farmers receiving the chickens are asked to breed them with the local poultry to produce a better variety of chicken adapted to the Lao environment. During the summer of this year over 500 chickens were distributed to Lao farmers.<sup>140</sup>

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In addition to these activities, two nongovernmental organizations, one American and one Filipino have done extensive work

in the provinces. The American group, International Voluntary Services, is composed mostly of young men with rural backgrounds who work for a nominal salary under the direction of a professional agronomist. Their activities, being carried out mainly among the Meo in Xieng Khouang, are the promotion of improved varieties of sweet potatoes which were originally imported by the IVS, importation of block mineral salt for livestock use, encouragement of the use of fertilizer on rice and other crops, assisting in insect and rodent control, promoting the raising of rabbits, ducks and pigeons, teaching the importance of the castration of scrub bulls, and studying the possibilities of improved marketing and storage procedures.

Some of the problems involved in carrying out technical assistance programs are illustrated by IVS resettlement efforts. Since 1956 they have been operating in the Phongsavanh area working closely with two Meo villages, Phouthang and Phoudou, located on the road leading to Ban Ban. Some of the Meo children attended local Lao schools, and a few of them lived with the American group.

The leaders of these two villages took the lead in advocating a shift to irrigated rice cultivation despite the firm belief of many of the Meo that they could not survive in the lowlands where the temperature was higher and where the cultivation of rice necessitated working long hours wading in water. Touby Lyfong, the nominal leader of the Meo people endorsed the proposed change.

In 1958 the district officer of the Phoudou and Phouthang area planted several hectares of paddy rice on the plains. Fortunately this first attempt coincided with a year of below average rainfall and the upland rice had an exceptionally low yield. The higher yield of the lowland rice convinced some people that it would be wise to consider a change in agricultural methods. But there were several drawbacks, including the facts that most of the easily irrigated lowlands were already used by the Lao, and that in order to provide water for the new, higher areas, canals would have to be dug, originating several kilometers distant and following the contours of the mountainside to provide a gravity flow of water to the rice fields.

An irrigation ditch one and a half kilometers long was built, but partly because Lao farmers diverted a large part of the water and also because the ditch was damaged by buffalo in several places, adequate water was not available. Attempts were continued to work out the difficulties, and some Meo even purchased na fields from the Lao.<sup>141</sup>

Operation Brotherhood, the Filipino organization, operates with the assistance of the Lao Junior Chamber of Commerce.

OB has begun developing demonstration farms in Ban Ban, Nam Bac, Luang Prabang, Pakson and Vientiane, where Filipino agriculturists show the peoples, especially through the young /Lao/ men training under them, how to produce more and better food through seed selection, better planting methods, land preparation, and improvement of livestock. The farm in Ban Ban is a ten-hectare expanse of rich black soil with water constantly flowing between vegetable plots from cool mountain streams. A poultry section is being developed in one corner of the farm and a fish pond is about to be built in another. Eight Lao boys are training on this



farm, living with the two Filipino agriculturalists in a shack they themselves constructed.

In the livestock farm in Paksong in the rich southern province of Champassak, the OB agriculturalist teaches his own trainees to breed, feed and butcher pigs....<sup>142</sup>

Basic to the continued implementation of these and similar programs is the education of Lao technicians. France has, of course, been the most important country in this regard, providing scholarships for study in France and in the schools established in Vietnam and Cambodia. In the period 1950-1959, nine students in agriculture and four in veterinary science studied in France on either French or Lao government scholarships. The periods of study averaged two to three years. The American aid mission has sent many more students and administrative personnel abroad, chiefly to Thailand, but also to the Philippines and the United States. These periods have ranged from a few weeks for a conference or tour for Lao administrative personnel to up to a year for intensive courses for more junior employees. For example, sixteen agricultural technicians were sent to Thailand and the Philippines for short-term training and four students each were sent for training in irrigation techniques, agronomy and agricultural extension work.

How significant are these programs in coming to grips with some of the basic agricultural problems of Laos? It is certainly easy to criticize them as being scattered, superficial and lacking in continuity. For example, a major factor in the improved seed and livestock program is the distribution of both the materials and techniques on a broad scale. There are also many small tech-

nical problems, some of which are not always anticipated; an imported boar or chicken often has too hearty or fussy an appetite to scavenge or be fed the usual diet of village pigs or chickens.

Western veterinary medicine is not always easy to practice in areas which have been almost completely reliant on traditional cures. Minor officials, sometimes overimpressed with their importance may substitute coercion for patient explanation, and frequently a new program dies as soon as the foreign technician departs. On another level, communication is a problem for the foreign technician and his Lao counterpart. More often than not the Americans lacked knowledge of either French or Lao. For the Lao educated abroad there is the problem of readapting the complex techniques he has learned, to the specific situations in Laos, often without the tools which he has been taught to use.

None of these difficulties, however, is insurmountable. Groups like the International Voluntary Services and Operation Brotherhood based in the provinces with their personnel often learning the local languages (Lao or Meo in these cases) frequently are much more effective than American technicians in Vientiane who get out only on field trips. Many projects are of a long-term nature with no immediate dramatic results to point out.

The key problem here appears to be training Lao personnel at all levels, to assume a greater portion of the responsibility for programs of innovation and extension. But for such developments, political stability is essential. In this respect the outlook is not bright.

# FOOTNOTES

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1. A smaller second crop is cultivated by the Lao or northern Thai in the region of Chiangmai. Since many of the climatic and traditional cultural factors are approximately similar, the single cropping in Laos is probably related to the generally more marginal economic character of the latter area rather than any inherent cultural or geographic factors. Kingshill, 1960:39-40.
2. And the Meo, but for different reasons.
3. The Khmu have adopted their wet rice technique from the Lao, and the procedure described here is quite similar to that of the Lao in the Luang Prabang area. This account was recorded and translated by Smalley, 1952-1954
4. Kaufman, 1961
5. The sixth Lao month is the usual time, but there is a considerable variation due to weather, and Khmu time concepts can hardly be considered rigid.
6. Sometimes, in the belief that the more seeds planted the greater the harvest, seedlings are planted so close together that the rice plants do not get sufficient sunlight or soil nutrients.
7. The Lao often use these stalks as buffalo fodder, but among many Khmu, and a number of Lao as well, there are often no buffalo to feed.
8. This usually occurs during July, but can be delayed by adverse weather; in a dry year the rice may not be transplanted until the middle of September.
9. It is common practice to erect a simple split-bamboo platform with a thatch roof in the rice fields where father and an older son, or mother and daughter, may take turns staying overnight and sleeping in shifts, guarding the fields from thieves or wandering livestock. This also ensures an early start during the busy planting and harvesting seasons, and is especially true in cases where fields are located far away from the village. At this time, the children are assigned the task of catching crabs and killing mice which pose the greatest pest problems to the farmers.
10. Normally occurring in November.

11. The husks are separated from the chaff by the wind, and in the absence of wind, by fanning. This is the same method still used by the majority of Thai farmers in the Bangkok area. Sharp, 1953:136
12. While this is probably true for the Lao of Vientiane Province in Luang Prabang both the Lao and Khmu use buffalo as well as the method described here.
13. Pelzer, 1959:126
14. Izikowitz, 1950
15. The Vietnamese term rai or ray is also frequently used in literature on this area. This is also a Thai word; in Lao speech the r has apparently been shifted to h (Anuman, 1959). See Bartlett 1956:693 for a discussion on this and similar terms used in other parts of the tropics. Volume 20 of the Proceedings of the Ninth Pacific Science Congress, Bangkok, 1958, also contains information on this subject.
16. Bernatzik, 1947:353-357
17. Barney, 1957:30-31
18. The men make holes with a metal-tipped digging stick, and the women follow them dropping in the seeds.
19. There are usually three different weeding periods, although only two are mentioned here.
20. Smalley, 1952-1954
21. Sinavong, 1957:1
22. Rajadhon, 1955:6
23. Levy, 1959:172
24. This custom has wide distribution and was practiced by the Thai peoples of Thailand and Laos, northern Vietnam, Burma and southern Yunnan. Within Laos the ceremonies were carried out by the royal families of Luang Prabang, Champassak and Muong Sing. In certain areas, even though royalty has disappeared or no longer performs the rites, villagers have substituted the nai ban or tasseng or have used the Kha, who have different phi, Sinavong, 1957:2 According to Quaritch Wales (Siamese State Ceremonies, 1931, pp 256-264) this custom is of Indian origin although it was also practiced in China and may have been influenced from this source in its earlier forms.



25. Gongs are a symbol of value; kam is a measure of diameter.
26. Faure, 1959:153-4
27. Sinavong, 1957:1-2. Phya Anuman relates for the similar Thai culture, "The matter of making offerings to rice and to the Rice Goddess no doubt comes from the belief that various things have life; whether human being or animal or plant, everything has something abiding in it which is called the khwan. If the Khwan is not constantly present, the living thing dies. Rice is regarded as having life and a khwan, and so the khwan of the rice must be treated in such a way as to cause it to remain present and not slip away, for this might cause the rice not to flourish or cause it to die. (1955:19).
28. Hickey, 1958:135, 145-7.
29. Izikowitz, 1951:212-215.
30. Bernatzik, 1947:200.
31. Ibid.
32. Dobby, 1954:311, 349.
33. Op. cit., 267-271.
34. Jin-Bee, 1958:114.
35. Izikowitz, 1951:38.
36. Smalley, 1952-54.
37. Wiens (1954:318) says the Meo move about once every eight years due to soil exhaustion; Seidenfaden (1958:131) notes 12 to 15 years between moves, and Bernatzik (1947:644) says from four to ten years.

A Meo nai ban who resides in a village some 15 miles from Luang Prabang town was born in Xieng Khouang, then moved to an area near Vientiane and from there returned to his original home before moving again to Luang Prabang Province. The Meo village of Kiouketcham about 60 miles from Luang Prabang town was originally settled 20 years ago by immigrants from Xieng Khouang, some of whom within the past few years have moved on to other villages, although some of these later returned.
38. The process of moving is described in great detail by Bernatzik. The decision to change the village site rests with the assembly of all men who are able to bear arms. Here the opinions of the village headman and the shaman carry great weight. The move is never made by single individuals or even nuclear families but by extended families and usually villages as a whole, a logic-

al expectation in this patriarchally structured society.

- Savina, (1930:183) reports: "When the Meo change their villages, they burn their houses. Others are left to decay. The small children are put into baskets with chickens and suckling pigs. When everything is ready, the signal is given for the departure. Everybody begins to move without showing any signs of sentiment or excitement. Nobody turns his head in order to cast a last glance at the deserted village. The Meo say "Our homeland is where the maize grows in abundance."
39. In contrast, a Meo informant near Luang Prabang said he was planning to move but felt that he should first accumulate a rice surplus.
  40. Lafont, 1960:187
  41. Abadie (1924:159-60) writes of the Meo of Tonkin, "Maize is the basic food of the Meo. It is boiled, steamed, dried, or reduced to meal in order to be eaten in the form of cakes. The Meo also cultivate mountain rice, but like the Man /Yao/ they are coming more and more to cultivate permanent irrigated rice fields, the working of which is easier and more remunerative. To this end they have taken over as much as possible of the favorable terrain, valley bottoms or sides of hillocks on which water may be brought by a simple canalization, and have laid out these areas into terraced rice fields where they often successfully cultivate rice and opium." cf. Barney (1957) on the Meo of Xieng Khouang.
  42. Boutin (1937:105) claims that the Meo of Sam Teu and Houa Muong are obliged to concentrate on corn because they inhabit an altitude of between 1,500 to 2,000 meters, where rice does poorly.
  43. Bernatzik, 1947:353-62
  44. "The mountainous Meo area has more hilly ground than fields. The usual crop is mixed grains planted on the slopes... Cultivated by knife and fire, otherwise known as yu, the field is known as the fire field or the yu field. The first year of cultivation the yield is doubled. The mixed crop includes corn, millet, barley, kaoliang and next hemp, beans and pearl-barley. The sowing is generally in April and May and the harvest in August and September.

Besides the yu fields the Miao also cultivate rice fields. Rice is transplanted in April and May and is gathered in August and September. There are very few level fields for irrigation in the mountainous Miao area, found only on small plateaus and along the two banks of the tributaries, the rest being terraced fields. The plateaus in the mountains receive

water from the waterfalls and springs. Watermills are used in the terraced fields along the rivers. The size of the watermill depends upon the height of the terraced fields. By means of long and short bamboo tubes the water is conducted to near and distant fields. /The Meo in Luang Prabang and other areas in Laos use this system to bring water to their villages but not to irrigate their fields/. The terraced fields in the Miao area are considerable construction feats.

But in the event of a shortage of rainfall, the spring water dries up. There is no means of irrigation and a drought comes in sight, which is greatly feared by the Miao... Sometimes, spared of the drought and the prospect of not harvesting a single grain, they fear an excess of water may ruin the foundation of the field. Sometimes the stone embankment is demolished. This is difficult to repair in a short time. Other times a catastrophic avalanche reduces the field into piles of stone and earth beyond repair. So, the Miao people toil all year round; in prosperous years they barely miss cold and starvation. In cases of disaster and drought, they are unable to look after themselves: the weak sell their children for a measure of grain; the strong band together and plunder the countryside. When the authorities press too hard on these marauders, widespread unrest often results. A proverb says: 'The Miao area has a small disturbance every five years and a large-scale disturbance every ten years.' This is not because the Miao are fond of trouble making, but because they are over-populated in restricted areas and driven to risk their lives in order to survive... Restricted in their land area, the Miao seek to utilize every inch of the land. Comparatively level land is irrigated. The slopes from the foot to the waist of the mountain are terraced. The highlands are made into yu fields." Ruey Yih-fu, 1940.

A similar situation is noted by Hsing-jui (1938) for the Meo of Hainan Island who combine cultivating level lands and planting on the mountain slopes. He says their method of rice cultivation is "almost the same as the Chinese," with the exception that they pay little attention to fertilization, irrigation and weeding. The wet rice fields have the advantage that they can be used to raise two crops a year, while the dry fields can be cultivated only once annually. Only a few comparatively wealthy Meo own the wet rice fields, so that the majority must rely on the cleared hillsides. "Since the mountain lands can not be used continuously for more than two or three years, when the soil is exhausted, it is necessary to stop planting it. The size of a hillside may be quite large, but it is not difficult to have the total area completely tilled by rotation within eight to ten years. Since it takes time for the land to recover from exhaustion, the Miao people must seek fresh land in other localities. Therefore, the Miao people are compelled to move once every few years, or at most, once in a decade...."

See also Embree (1950, 146-7) and Mickey (1947).

45. See Iwata (1960) and Srisvasdi (1950).

46. Savina (1930, 174) notes that if one asks the Meo why they live in the mountains and abhor the plains, they give various answers:

"The mountains are less hot, humid and unsanitary." /In Laos they frequently cited the menace of malaria./

"We do not descend into the plains because we are afraid of the water, the leeches and the buffalos."

"We cannot live in the plains because we were born in the mountains. Transplanted trees will never thrive."

"We cannot leave the mountains behind, because in the mountains are the graves of our ancestors."

"The inhabitants of the plains understand how to work in and how to cultivate the plains, just as we Meo know the work and the cultivation of the mountains."

"The people on the plains do not speak our language. How could we be able to understand them?" /Today in Laos many adult Meo speak at least a little Lao while older men often know Yunnanese./

"If we descend into the plains, our girls would marry people who do not belong to our race."

"In the plains there are too many wars, duties, soldiers and mandarins."

"If we would settle down among the people on the plains, they would steal our herds."

"We do not want to go down into the plains because there we would not be allowed to plant opium, maize or fruit trees."

"The soil of the mountains belongs to the Meo; the soil of the plains does not belong to them."

47. Pelzer, 1958.

48. Thompson, quoted in Benedict, 1952:7.

49. Madge, 1957:51.

50. Quoted in Bartlett, 1957:352-53

51. Water shortages are common in Northeast Thailand as well. Villagers are very conscious of this, and of its effects on the rice crops, and a usual reply to a question concerning one's rice is, "not enough -- scarcity of water (Klausner, 1956:2)."

52. In addition, in the area of the royal capital there are a number of specialized crafts villages -- for weaving, pottery-making and blacksmithing. In the vicinity of Luang Prabang there are gardens on the Mekong and nearby Nam Khan embankments which supply the town markets with vegetables. The town itself has also expanded somewhat in recent years, due to the



growth of government departments following the independence of Laos and to the presence of an army garrison plus some expansion in local commerce, all in part directly or indirectly a result of the American aid program. The point here is that these developments have provided at least some jobs for farmers from the surrounding villages and at the same time a greater market for their agricultural produce, thereby making many villages a little less dependent on rice cultivation as the main source of income. Nevertheless, rice farming, either by na or hai is and will remain the basic occupation of most Lao villagers for the foreseeable future.

53. Klausner, 1956.
54. Kaufman, 1960.
55. Smalley, 1952-54. (In Kentung in northern Burma a change from swidden to irrigated rice fields is being encouraged by the missionaries as a means for bettering economic status: "...the literate Christians have been approached through books magazines and word of mouth to show them the need of finding more satisfactory methods of agriculture. The method to which they are turning is that of the irrigated rice fields in the narrow valleys and lowlands." Lewis, 1957:225).
56. The late Viceroy of Laos, Prince Phetsarath, in his frequent trips through the countryside personally encouraged the resettlement of the Khmu and in some cases provided them with implements.
57. The following is quoted from a broadcast of the Hanoi Radio on November 28, 1959:

"In spite of serious and repeated natural calamities which occurred during cultivation, four large fields in the Tai-Meo Autonomous Region have yielded an autumn rice crop which far exceeds expectations. The average yield is expected to exceed 3 tons per hectare while that for the whole of North Vietnam is estimated at 2.5 tons. These fields cover more than 8,000 hectares, that is, about one-third of the rice-growing area in the region. In the Dien Bien Phu area, where the famous battle took place, the average exceeded 3.6 tons per hectare, the highest average yield in the region. Most of the region's 3,000 hectares of crop land this year suffered serious waterlogging during cultivation. But the local population put in thousands of workdays scooping water out of the fields and doing timely manuring work, preventing crop losses. The local cooperatives, which had practiced close planting, obtained twice as much rice per hectare as did individual peasants who kept to their old habit of sparse planting.

The Nghia Lo fields, which cover many hectares, recorded an

average output of 2.7 tons per hectare despite prolonged and repeated water shortages. On several plots which received sufficient water, it was as high as 4.2 tons. On the two other fields in Quang Huy and Than Uyen districts, the rice output exceeded 3 tons.

In addition, dozens of small fields in the area have also reaped a bumper crop. For instance, on the Tong Lanh and Thom Mou fields, close to Thaun Chau, capital of the Tai-Meo Autonomous Region, the yield ranged from 3.7 to 4.6 tons per hectare."

On November 30, 1959, Hanoi Radio broadcast:

"Thanks to the strict application of improved farming techniques, almost all the experimental rice plots in North Vietnam have had high yields in this autumn's crops, ranging from five to nine tons per hectare. This is double and even triple the average output for North Vietnam as a whole. The establishment of experimental fields began in the autumn rice cultivation period of last year on a small scale, following China's big leap forward in agricultural production. But this year, it became a mass movement spreading to most parts of North Vietnam.

In Phu Tho Province more than 500 plots were established which recorded an average yield of five or six tons. In Nghe An Province, the experimental plot of young members of the Tran Phu cooperative brought in 9.3 tons per hectare.

On these experimental plots, the peasants have applied in a creative manner the advanced experiences of Chinese peasants to the practical soil and climatic conditions of Vietnam. These fields were plowed more deeply, planted with denser rows of rice plants, spread with more manure and received more care than the other fields. It has positively confirmed the superiority of the new farming methods which have proved very successful in China."

58. Yields from Ku Daeng in northern Thailand indicate that the Vietnamese figures are certainly within the realm of possibility. In this connection Kingshill's remarks about declining yields are interesting (1957:65):

"According to old-timers, the yield in Ku Daeng has been steadily decreasing over the years. One old woman told us that the people worked harder when she was young. They pulled out all the weeds they found in the fields, using both hands, whereas nowadays, the workers use only one hand. In 'her time' the yield was nearly twice what it is today. Another villager said that the farmers watched the insects more when he was young, thereby reducing crop damage. He added that people today are too lazy to take proper care of their crops. Furthermore, cooperation and leadership are lacking with regard to regulation of the water supply. A few people, nowadays, attend to the work of building the irrigation system, but when it is



finished, everybody uses the water to his own advantage without consideration for his neighbors, the man concluded. The decrease in productivity is undoubtedly due to over-cultivation of the soil. This seems to be true for the country as a whole. According to one informant, fertilizer has been distributed by the government. Favorable results have failed to materialize, however, and this was blamed on inadequate instructions received with the fertilizer."

59. Duclos, 1959.
60. Gourou (1956:345) says, "They have rediscovered cherished habits and they obey also the lessons of experience; they have observed that permanent rice fields, without manure, gave a lesser output per day of work than ladang/swiddens/. It should be mentioned, however, that although unfertilized wet rice fields may have lower yields than swiddens, still they can support infinitely greater populations, since they give consistent yields over a long period of time. The Tonkin delta can support 800 persons per square mile, or over 100 times that of the Lamet area.
61. Radjathon, 1955:23.
62. A touque is a five-gallon kerosene tin, approximately equal to a kalon, or container, usually a basket, with a capacity of twelve kilos of paddy (unhusked rice). Wa is a geometrically varying measure based on the circumference of a mound of rice; it approximates the length of an arm span. The Yao mut is similar to the Lao kalon. Some observers claim that this word is derived from the English gallon and has been adopted into Lao from Thai.
63. Thai Ministry of Agriculture, 1958:133.
64. Janlekha, 1955.
65. This is an extremely conservative estimate.
66. Izikowitz, 1951:208-9.
67. Dobby (quoted in Bartlett, 1957:385) estimates that a cutover area needs to stand unused for seven to ten years. Smalley says seven to eight years is the usual period the Khmu allow between cultivation of their hai, in the Luang Prabang area. In more sparsely populated areas of Laos the situation described by Izikowitz probably prevails.
68. Bartlett (1955:237) summarizes the situation described by Gourou for North Vietnam and makes some other comparisons: "In his remarkable monograph on the Tonkin Delta, Gourou has

given a comparison between the culture of the vastly more densely populated overflow lands with their permanent rice cultivation and that of the immediately surrounding sparsely populated mountains. The latter resembles that of the Mountain Province of Luzon or the highlands of Java or Sumatra, in that agriculture has developed in the permanent phase of rice cultivation on irrigated terraces, but since not more than 5 percent of a Tonkin upland at best is suitable for terracing and likewise has a water supply, the agriculturists must depend considerably upon dry-land rice because the soil is too infertile, and therefore they use agriculture of the shifting type which the Annamites call 'ray.' Fields are used only two years and lie fallow, with whatever woody plant cover follows the abandonment, for about twenty years. The agricultural cycle is the familiar one of cutting and burning, but the technique of cultivation has passed beyond the absolute primitive in that the hoe is used rather than merely the planting stick. The ashes of the burned trees and bush are the only fertilizer used. It is only under favorable conditions that woody plants return so that the cycle can be repeated indefinitely. On the soils derived from schistose rocks, the forest does not repossess the clearings, but a savanna of coarse herbaceous vegetation develops as in the Lai Chau country. Then 'ray' agriculture is no longer practicable, and no use can be made of the land except for stock raising, and the herbage is hard and of mediocre quality."

In another source Gourou (1951:33) states that 105,000 square kilometers of the Tonkin uplands have been so stripped of trees that they can no longer supply the timber needs of the 15,000 square kilometers of the Tonkin Delta, the implication being that this is due to hai agriculture.

The great degree of variation becomes apparent in another excerpt from Gourou, (quoted in Bartlett, 1957:565): "The 'ray' system does not permit a high density of population, but it conserves soil since erosion attacks only slightly land that is not cultivated and on which, after the second year, trees grow again, and since the reconstitution of the forest hinders laterization...practiced with the unconscious wisdom of the Indochinese mountain people, the ray cultivation is a sufficiently prudent technique of soil utilization in broken country."

Pelzer, (1957:6) also stresses an important positive point: "...one of the valuable features of swidden agriculture is that normally the plow is not one of the tools used...the plow can be a very destructive tool when not properly handled...and is definitely inferior to the dibble stick and hoe on steep slopes"

Many other sources could be cited, but included here are comments of two anthropologists and an agronomist who have made intensive studies of swidden cultivators in widely separated areas. Conklin (1957:138) in discussing the agricultural swidden practices of the Hanunoo on the island of Mindoro in the Philippines, states: "Within the context of Hanunoo culture, fallowing is more accurately viewed as a period in which most vegetation is prepared for the next swidden cycle by controlled natural reforestation and forest enrichment. Areas in low forest fallow are protected from destruction



- "(1) Swidden farming follows a locally-determined, well-defined pattern and requires constant attention throughout most of the year. Hard physical labor is involved, but a large labor force is not required.
- (2) Where possible, swidden making in second-growth forest areas (rather than in primary forests) is usually preferred.
- (3) Swidden fires are often controlled by firebreaks surrounding the plot to be burned...
- (4) Many details of swidden technique differ from area to area, and with changing conditions. Weeding is assiduously accomplished in some regions...
- (5) Even the most noxious weeds, in one context, may serve the local economy admirably in another. *Imperata*, if dominant, restricts swidden opportunities, but its total loss causes similar hardships for those depending on it for pasture and thatch.
- (6) Swiddens are rarely planted with single or even with only a few crops. Hence, the productivity of a swidden can be determined only partially by an estimate of the harvest yield of any one crop. /This holds true in Laos, as has been pointed out./
- (7) It appears that the efficiency of swidden farming can be ascertained relative to some other type of economy only by taking into account the total yield per unit of labor, not per unit of area. /Complete data on this point are lacking for Laos, but it does appear that swidden farming requires more intensive labor than does na cultivation, particularly in the matter of clearing a hai which is done more often than the making of a na field./
- (8) Because of intercropping, the harvest of one main swidden crop may serve only to allow one or more other crops to mature in turn. "Plantings and harvests overlap usually for more than a full year, and frequently continue for several years."
- (9) Swidden intercropping, especially if wet season cereals are alternated with dry season leguminous crops, amounts to a type of crop rotation, even if on a limited scale. Cycles of field 'rotation' cannot be meaningfully assessed by merely determining the number of years which lapse between dates of successive clearings. The agricultural use of the swidden plot following initial clearing may have continued for one, several, or many years.
- (10) It is difficult to set a minimum period of fallowing as necessary for the continued, productive use of swidden land by re-clearing. Many variables are at work. A reasonable limit seems to be somewhere between 8 and 15 years, depending on the total ecology of the local situation. Swidden farmers are usually well aware of these limitations."

Freeman (1957:29-30) concludes his study of the Iban with the following remarks: "Under Sarawak conditions, if virgin rain forest is felled, fired and farmed for one season only, and then allowed to recuperate, adequate regeneration takes place. Furthermore, if thereafter the resulting second jungle is brought into cultivation at sufficiently rare intervals and never for more than one season, the land may be utilized virtually indefinitely without serious

degradation taking place. Should these conditions be observed, shifting cultivation is an economically justifiable form of land usage. However, as soon as the cycle becomes too short, and particularly when land is cultivated for two or more years in succession, serious degradation occurs and often ends in complete devastation. When this happens, shifting cultivation can only be characterized as wasteful and dangerous. Of the fact that the methods employed by the Iban are prodigal of natural resources and frequently produce more deleterious results there can be no doubt. Particularly to be condemned is their custom of cultivating land for two or three years in succession or several times within a span of five or six years. If shifting cultivation in Iban pioneer areas is to be stabilized, it is of crucial importance that every attempt should be made to eradicate these prodigal methods."

The following statements by a Belgian soil conservation expert (Tondeur, 1955:67) doing research in the Congo, lend support to the general viewpoints of Gourou, Conklin and Freeman, although there is not complete agreement on all points.

"Shifting cultivation in the Belgian Congo is not today regarded as a necessarily unsuitable type of agriculture, but rather as the inevitable outgrowth of various particular local factors. After an initial period when European settlers thought they could impose a European way of farming, the prevailing opinion has been that it is the only type of farming that conserves the soil, at least so far as present knowledge goes.... /This method/ was the logical result of /the existing/ land system, and the economic and social conditions prevailing in the country, just as it was the sole form of rural economy compatible with the various /ecological factors/."

Tondeur goes on to make the interesting point that to change the system of cultivation would require considerable capital investment. In addition, cooperatives would have to be organized since it would be highly unlikely that farmers would change their patterns of cultivation as individual families. The matter of disturbing traditional systems of land tenure is also referred to.

69. In this connection see Omer C. Stewart, "Fire as the First Great Force Employed by Man," in Man's Role in Changing the Face of the Earth, William L. Thomas, ed., University of Chicago Press: 1956, 115-133, and Charles F. Cooper, "The Ecology of Fire," Scientific American: April 1961, 150-160.
70. H. A. M. Wirty, commenting on the original version of this chapter stated (in Tropical Abstracts, 1959:356-357) that the hai holds an important complementary place in the rural economy where wet rice cultivation is normally predominant, and that shifting cultivation should not be abolished under all conditions.

ions as soon as possible. However, Wirty continues, the Meo are responsible for severe deforestation on a large scale in Laos' highest mountains. Latge steep areas which should be forest reservations have been replaced by coarse grasses which are burned off every dry season, thus preventing natural reforestation.

In this connection it is possible that there are significant differences in the ways in which the Meo cultivate their hai, as compared to groups such as the Lamet, although superficially there are many parallels. Barney states that a specific field may be used for three or four successive years, while Bernatzik observes that for the Akha as well as the Meo, their fields lie fallow from eight to ten years. This is said to be a necessity since rice is planted for two years in succession in the same field. Izikowitz implies that most fields are used only a year at a time and also indicates a somewhat longer fallow period. This problem cannot really be resolved until we have more exact and extensive data for the "great forest destroying Meo." Specifically, how long do they really use their land? -- One, two, three, four or more years in succession? -- and for which crops? How do they feel about land use? Do they have any conservation practices? Are their extensive migrations ecologically, politically, or psychologically inspired, or to what extent are their motives mixed? How far do they move each time?

71. Wirtz, 1958:7. These estimates are rough and part of the fields remain fallow so it is probable that the total area in rice fields is between 400,000 - 500,00 hectares. The low hai and na yields Wirtz estimates may balance out the over-estimated acreage.
72. Kaufman, 1961:51.
73. Holdings along the river bank have been very fertile soil enriched each year by silt from the river's annual rise.
74. Duclos, 1959:5 (Luang Prabang).
75. Cf. Abadie and Savina.
76. This is similar to the Xieng Khouang Meo. Rice and opium are given the most effort, with corn as a livestock feed, third. Potatoes are often used as fertilizer in the opium fields, while pumpkins may be raised as fodder for horses. Barney, 1957: 30-32.
77. Srisvasdi, 1950.
78. Lafont, personal communication.
79. Reinach, 1901:405. In this way, Irish potatoes were introduced to the Meo.

80. Bernatzik, 1947:360.
81. Savina, 1930:216 and Lajonquiere, 1906:310 (quoted in Bernatzik)
82. Izikowitz, 1951:257-60.
83. Serene, 1959:175.
84. Ibid:177-182.
85. Dooley, 1958:25.
86. Savina, 1930:230.
87. Bernatzik, 1947:351-52.
88. Smalley, 1952-54.
89. A person who supplies a gun or a dog gets a double portion.
90. Dooley (1958:106-107) describes a man who was gored by a wild boar and another who was mauled by a bear.
91. This distribution applies to meat which results from the hunt as well as to sacrificial meat.
92. Within the exogamous group.
93. Izikowitz, 1951:178-99.
94. Use of guns was for a time forbidden by the French colonial government. Since independence this prohibition is no longer in effect, and many Khmu, and especially Meo, have guns, often of their own manufacture. The Lao police confiscate Meo guns when they use them on one another. In northern Laos many of the police stations look like weapons museums, piled high with flintlocks.
95. Andrianoff, 1959 (personal communication).
96. Lajonquiere, 1906:162.
97. Savina, 1930:230.
98. Bernatzik, 1947:339-50. In his The Spirits of the Yellow Leaves (1951) Bernatzik describes a hunting and gathering group on the Lao-Thai border, but the group is small and marginal and his description is incomplete.
99. Kaufman, 1960.



100. Duclos, 1959.
101. Though paddy land is scarce, pasturage is adequate and fodder is no problem for most owners of livestock. Roadside areas, grassy wooded areas, water holes, and any unclaimed rice stubble are considered public for cattle grazing. Kaufman, 1961:1
102. Farmers in northern Laos do not have wagons, due to the traditional lack of roads.
103. Kaufman, 1956:4-5. A similar situation prevails among the Meo who have acquired a taste for condensed milk. In fact, Lao government officials have requested help in developing dairy cattle breeding in Xieng Khouang.
104. The Lao unit of currency; in 1957 the official rate was 35 to \$1.
105. Reinach, 1901:406.
106. Barney, 1957:32.
107. Jumsai, 1959:26.
108. It might be thought that the Lao as Buddhists would not sacrifice livestock. Buddhism however, is only one aspect of Lao religion. As in many other Asian countries, Buddhism and animism exist side by side without significant conflict. The Lao did not see any inconsistency in the official prohibition of slaughtering of animals for three days during the 2,500 anniversary of Buddhism and, a few months earlier, sacrificing buffalo to the phi to ensure a water supply for the rice fields.
109. Izikowitz, 1951:204.
110. Smalley, 1952:1954.
111. This order of events may be questioned. It is interesting here that the informant emphasizes the buffalo as a prerequisite to building the house. The cash expenditures are very significant and represent proceeds from rice sales or coolie labor.
112. Srisvasdi, 1950.
113. Izikowitz, 1951:106.
114. Bernatzik, 1947:122-23

115. At Luang Prabang, two buffaloes, white and black, are offered each year to the guardian spirit called Phi Seu Muong.... This sacrifice has not taken place in Luang Prabang for a number of years.... Yet, buffalo meat constitutes the plat de resistance during all ceremonies in honor of the spirits. ...Formerly in Luang Prabang the King used to personally contribute money to the maintenance of this sacrifice, memories of which are still vivid....Lévy, 1959:162.
116. Hickey, 1958.
117. When the question was raised as to why one village sacrificed only chickens while the other used buffalo, the reply was that the desire of the respective phi was being complied with in each case.
118. Jumsai, 1959:20.
119. Izikowitz, 1951:269.
120. People's Viet-Nam Pictorial, No. 3 (19), 1959:19-20.
121. As we have seen, in Laos many mountain peoples expressed dislike for life in the valleys.
122. Fox, 1958:129
123. Ibid., 126.
124. "China's National Minority Areas Prosper," Peking Review, May 26, 1959:10.
125. From Kwang Ming Jih Pao, Peking, February 10, 1956 (translated by Union Research Service, Hong Kong, vol.2:278). This Chou, or special district, one of four in Yunnan, is located in the southwestern part of the province, with a total area of 25,000 square kilometers.
126. Survey of China Mainland Press, U.S. Consulate General, Hong Kong, No.1848:9.
127. It is possible that this is the Lawa and thus closely related to the Khmu.
128. This belief exists among the Lao of Luang Prabang Province, in that they often hesitate to cut down a forest for fear that it will offend the resident phi, while a group of Yao in Muong Sing stated that their village phi would not approve if they came to live in the valley.

129. "Minority Nationalities in Yunnan Freed from the Bondage of Old Customs," by Huang Chang-lo, Jen Min Jih Pao, Peking, September 4, 1958: in Survey of the China Mainland Press, U.S. Consulate General, Hong Kong, No. 1859:11-12.
130. It would be very interesting to know how these statistics were determined, since it is unlikely that records of sacrifices were kept in every village.
131. Hung-chi (Red Flag), No. 5, March 1, 1959; in China Mainland Magazines, May 18, 1959, No. 163:13, U.S. Consulate General, Hong Kong.
132. Quoted in Kaufman, "Meo and Black Thais Pose Resettlement Problem for Laotian Authorities," Bangkok World, November 30, 1957:9.
133. Plan de Developpement Economique et Social - period de 5 ans du 1<sup>er</sup> Juillet, 1959 au 30 Juin, 1964, Royaume du Laos, Mars, 1959.
134. In 1959 Laos had one fully trained agronomist, educated in France (Ingenieur d'agriculture); 15 agents (controleurs d'agriculture), with varying degrees of education in Indochina and France; 52 other types of personnel with lesser training (agents de culture et de vulgarisation) and 8 chauffeurs. In the next five years it is hoped that these categories can be increased to 10, 30, 200, and 20 individuals respectively.
135. In 1959 a group of French agricultural economists and a French social anthropologist were carrying out studies in the Vientiane Plain at the request of the Lao government.
136. Reliable figures do not exist, but a 1943 estimate listed 350,000 head of cattle and 400,000 buffalo for all Laos; see also Table 22 for other estimates.
137. This will be a very significant development in view of the fact that traditionally the Lao have made no use of animal milk products, but they appear to have developed a taste for imported tinned milk.
138. In 1959 there was one veterinarian who was head of the Service, and in Vientiane and the provincial stations were five employees who had received training in Phnom Penh. In order to be able to properly staff the provincial posts in Vientiane, Sayaboury, Xieng Khouang, Thakhek, Savannakhet, Saravane and Attopeu, it is considered necessary to have 10 qualified veterinarians. In addition seven more are needed to staff the experiment stations and the inspection division. In 1959 there

were four students of veterinary medicine in France. The further recruitment of 10 more lower-level technicians per year is envisaged, with emphasis to be placed on candidates from non-Lao ethnic groups.

139. USOM/Laos report, 1959.
140. Ibid.
141. From an International Voluntary Services report.
142. Operation Brotherhood - Laos, 1959 report.



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