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## Modernization of Pagan Gaddang

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## Notes and Comments

### Modernization and the Pagan Gaddang

BEN J. WALLACE

Rural Southeast Asia has seen rapid changes in technology, economy and demography during the last decade. Roads have been constructed where only foot paths existed ten years ago. Bicycles have been replaced by motorcycles and transistor radios can be found in even the most remote of areas. New varieties of rice, accompanied by improved fertilizers, pesticides, and agricultural equipment have created new economic opportunities for farmers. And, one-time rural market centers are being transformed into towns, characterized by canned goods, electricity, movie theaters and designer jeans. All of these factors have contributed to changes in the traditional social and demographic characteristics of rural Southeast Asia.

The purpose of this essay is to examine the social and economic implications associated with a major factor changing the landscape of rural Southeast Asia—agricultural technology. Specifically, my analysis centers on the pagan Gaddang of Northern Luzon.<sup>1</sup>

I would like to acknowledge my appreciation to Southern Methodist University and The Institute for the Study of Earth and Man, for funding this research, and to the Institute of Philippine Culture, Ateneo de Manila, and to my pagan Gaddang friends without whom the research never could have been completed.

1. The pagan Gaddang should not be confused with the so-called Christian Gaddang who have for many years practiced a lowland Filipino way of life. See Godfrey Lambrecht, "The Gaddang of Isabela and Nueva Vizcaya: Survival of a Primitive Animistic Religion," *Philippine Studies* 7(1959):194-218; and his "Anitu Rites Among the Gaddang," *Philippine Studies* 8(1960):584-602; also Ricardo E. Galang, "Ethnographic Study of the Yogads of Isabela," *Philippine Journal of Science* 56(1935): 81-89; and Ben J. Wallace, *Hill and Valley Farmers* (Cambridge: Schenkman Publishing Co., 1970), p. xiv. The pagan Gaddang, as viewed by the Christian Gaddang and other lowlanders, are not Gaddang, they are "Kalinga." They are often considered a wild, dangerous, or backward people. In this article Gaddang is used to signify the pagan Gaddang of the Pakak and the Ngileb.

Particular emphasis is placed on the ways agricultural technology stimulates changes in the manner in which a society is organized and how it may affect the society as a viable cultural entity.

In 1965-66 the primary subsistence strategy of the Gaddang was slash and burn cultivation.<sup>2</sup> The types of crops and yields were in large part dependent upon the ecological characteristics of the region, i.e., significantly more forest land in the northern Gaddang area and significantly more cogon grass (*Imperata cylindrica*) in the southern Gaddang area contributed to cropping differences. In 1966 there were only a few plow farming Gaddang settlements. By 1979, many of the southern Gaddang had abandoned the practice of slash and burn or swidden cultivation and adopted plow agriculture. The primary subjects of this essay practice plow agriculture.

#### TRADITIONAL GADDANG SETTLEMENTS

In 1965-66, I conducted a study of what may be considered a typical southern Gaddang settlement, Pakak.<sup>3</sup> The settlement consisted of thirty-three people, occupying eight houses. The houses, situated in a small forest, were located at an elevation of about 250 meters in the foothills of the eastern slopes of the Cordillera Central in Ifugao. The habitat of the area conformed to what is generally termed a "monsoon forest."<sup>4</sup> During a two to three month dry season, the trails were covered with dust and cracks could be seen in the soil of most areas not protected by vegetation. There was much less plant diversity found in the Pakak region than would be found in a rain forest. It was an area of alternating stretches of forest and grassland, the forested areas seldom covering more than a few square kilometers. The availability of swidden land was further reduced by the fact that the small patches of forest were banked on all sides by cogon grass. It was in these small forested areas that the Pakak Gaddang practiced their swidden cultivation.

2. See my *Shifting Cultivation and Plow Agriculture in Two Pagan Gaddang Settlements* (Manila: National Institute of Science and Technology Monograph No. 11, 1970); *Hill and Valley Farmers*, pp. 56-75; and "Swidden Technology of the Pakak Gaddang," in *Society, Culture and the Filipino*, Mary R. Hollnsteiner, ed., (Quezon City: Institute of Philippine Culture, Ateneo de Manila, 1979), pp. 189-202.

3. See Wallace, *Hill and Valley Farmers*, pp. 56-94.

4. Robert E. Huke, *Shadows on the Land: An Economic Geography of the Philippines* (Makati: Carmelo and Bauermann, Inc., 1963), pp. 26-51.

The overall appearance of a Gaddang swidden (*Kaingin*) depended upon the season and the number of years the land has been cultivated. For example, a first year swidden, by the month of October, was a lush growth of ripening rice grain and an assortment of maturing beans, peas, tomatoes, squashes, and other vegetables. By February, part of the dry season, the same swidden appeared barren and dull in color and housed only a small scattering of edible plants.

Because Pakak swiddens have been described in detail elsewhere,<sup>5</sup> only a summary of the annual swidden cycle (see Table I) is necessary here.

TABLE I  
BASIC STEPS IN THE SWIDDEN CYCLE

Gaddang Term	Month	Activity
1. <i>busing</i>	February	Site selection and preliminary cutting
2. <i>pidwana busing</i>	March	The second cutting
a. <i>mataraw</i>		Trimming the trees
b. <i>nauma</i>		The site is cut
c. <i>magangu</i>		The felled materials are drying
3. <i>sikulan</i>	May	Burning the cebris
a. <i>makat</i>		Piling the unburned debris for reburning
4. <i>malandak</i>	June	Pulling the weeds from the site
5. <i>makamel</i>	July	Clearing the site
6. <i>mimunaw</i>		A rice rite
7. <i>mabini</i>	July	Planting the rice
8. <i>mamula</i>		Planting other cultigens
9. <i>amuwawan</i>	September	protecting the swidden
10. <i>mimunaw</i>	November	A rice rite
11. <i>magani</i>	December	Harvesting the rice
a. <i>mamilag</i>		Drying the rice
b. <i>madot</i>		The rice is safely placed in the granary
12. <i>mamula</i>	January	Planting other cultigens

5. See my *Hill and Valley Farmers*, pp. 56-75.

Generalizing from my 1965-66 study, southern Gaddang swidden communities may be characterized, as follows:

1. The communities were located in marginal patches of monsoon forest, usually covering only a few square kilometers, and surrounded by cogon grass.
2. The households, numbering between five and fifteen, were dispersed in and around the swiddens.
3. The average number of persons per household was five.
4. The household, the *tabalayan* ("one house"), was responsible for its own economic and social welfare.
5. Swiddens seldom exceeded one-half hectare in size.
6. Land was not owned by individuals or families. Households had rights of usufruct to farm the land.
7. Using bushknives, axes, digging sticks, and knowledge of the local environment, the primary mode of subsistence was swidden cultivation.
8. The Gaddang perceived the year as consisting of two growing seasons: the "rice growing" (*abafini*) and "the other domesticated plant growing" (*mamula*).
9. The swiddens reflected considerable cultigen diversity; rice was the primary crop but usually grown in association with sweet potatoes, mung beans, sponge gourd, garlic, tomato, cassava, bananas, yams, taro, bitter melon, swamp cabbage, and leaf mustard.
10. Rice yields were low; eight to thirty cavans per hectare, depending for the most part, on the number of years the cleared areas has been farmed.
11. To supplement their swidden economy, the villagers grew and sold a little tobacco, hunted and fished, sold bamboo and rattan to lowlanders, and rented out a few carabao.
12. If a household farmed a cleared area for more than three years in succession, cogon grass became the dominant ground cover, thereby rendering the area unsuitable for swidden cultivation. The household would then start a new swidden nearby or sometimes in a distant area.

## MODERNIZING PAGAN GADDANG COMMUNITIES

## THE SETTLEMENT

Ngileb is a Gaddang settlement consisting of 151 people occupying twenty-seven houses. The community is located at an elevation of about three hundred meters in the foothills of the eastern slopes of the Cordillera Central in Ifugao.<sup>6</sup> The climate is monsoon and the predominant ground cover is cogon. The only significant forest cover is in the mountains west of Ngileb, a distance of three hours walking. Visually, Ngileb appears to be a settlement of dispersed houses situated on rolling hills covered by a sea of grass. The two Gaddang settlements nearest Ngileb are located a distance of about five hours walking. The economy of these two nearby settlements is based on plow agriculture although a small amount of swidden cultivation is still practiced.

Informants say that the Gaddang first settled in Ngileb during the early 1950s. At the time, the area was forest covered. I visited Ngileb in 1966 and there were eight Gaddang households there, all practicing swidden cultivation in scattered pockets of forest. Ngileb was referred to then by many Gaddang as "the place of killing" or "the place of taking heads." Over 50 percent of the households in Ngileb have been there for over ten years; two of these households have been there for twenty-five years. Informants agree that plow agriculture did not start to replace swidden cultivation in Ngileb until about 1970.

Pakak was abandoned in 1968 because of a lack of swidden land and pressures of encroachment from Ilocano. The Gaddang of Cabanuangan, an incipient plow farming community near Pakak,<sup>7</sup> dispersed in 1971 because of competition for land with Ilocano and Cagayano and because of two Ilocano and Gaddang murders.<sup>8</sup> Some of the families from Pakak and Cabanuangan migrated to Ngileb. When asked why they chose to come to Ngileb, informants usually said they moved because of problems with Ilocano, because it was an established Gaddang community, and because farm land was available.

6. Ngileb is approximately an eight hour walk from Pakak.

7. Wallace, *Hill and Valley Farmers*, pp. 94-96.

8. According to informants, two Ilocanos were killed in Cabanuangan in 1971. Gaddang were blamed for the murders and shortly thereafter, two Gaddang were murdered (one a friend of mine, Bakawag, discussed in *Hill and Valley Farmers*).

In traditional swidden farming Gaddang settlements, the tabalayan was responsible for its total social and economic welfare, i.e., each household was an independent and self-sufficient unit. The overall economic independence of the household is changing at Ngileb. This change reflects primarily social adaptation to plow agriculture. As swidden farmers, except for felling large trees and occasionally during harvest, the household members could perform all labor requirements. As plow farmers, labor cooperation and the sharing of tools is necessary to maintain economic efficiency. For example, two or three men with water buffalo can plow and harrow a hectare of rice land more quickly and efficiently than a single head of household. The planting of a rice field can be accomplished very rapidly by entering into a labor exchange-relationship with two or three other households. A hectare of rice can be harvested in one day if twenty or thirty people from the village are involved. When two or more households enter into some sort of labor reciprocal relationship, more often than not, it is between relatives although on occasion, it is between non-related friends. The plow farming Gaddang, however, are reluctant to give up their household independence and feel that it is better maintained by cooperating with relatives.

Gaddang plow farming communities are larger than swidden communities. For example, Ngileb consists of twenty-seven households. The houses, generally larger and showing greater variation in style than in a swidden settlement, are dispersed along a meandering path that extends from one end of the community to the other, a distance of approximately three kilometers. The smallest type household has only one person, of which there are three — two widowed women and one widowed man. All three of these household heads have relatives in Ngileb but each chooses to maintain his or her own household independence. The largest household consists of nineteen people; a man, his two wives and sixteen unmarried children. Extended households where married children reside with parents is rare among the Gaddang. The average number of persons per household in Ngileb is 5.5.

The Ngileb population is relatively young: 63 percent of the population is under twenty years of age. Only 15 percent of the people are over forty. The adults in Ngileb have been married an average of 1.7 times, the most often stated reason for a second

marriage being the death of the spouse. The adult women have given birth to a total of 150 children of which thirty-four died by the age of five years. In short, each adult woman has given birth to an average of 5.2 children of which 1.2 children die by the age of five. The overall death rate for children by the age of five years is 23 percent.

Unlike most of their parents, the children at Ngileb are attending school. Almost 80 percent of the school age children in the community have attended or are presently attending school. There is a primary school in Ngileb (grades one and two) which is well attended by most of the children in the community. Almost 50 percent of these children go on to attend a primary school (that goes through grade six) in an Ilocano-Ifugao community located about six kilometers away. Only a few of these children, however, actually graduate from this school. One young man in Ngileb has graduated from high school and several other young men and women are presently in high school. Not all the families in Ngileb place a high value on education but more and more of them are beginning to at least verbalize a desire for their children to obtain an education.

#### THE AGRICULTURAL CYCLE

Traditional Gaddang swidden farmers divide the year into two distinct seasons, the rice growing season and the "other" growing season. Ngileb farmers divide the agricultural year into three seasons, the tobacco (November-February), corn (December-March) and rice (July-December) seasons. This is the case even though tobacco and corn are seasons of direct overlap. A swidden in Gaddang is an *uma*. A plowed farm is a *gi'umuman*, "a place where the soil is tilled by a plow for planting cultigens." The traditional rice-vegetable cropping orientation of swidden farmers has been replaced by a cash cropping orientation in Ngileb.

The farm land, usually located a distance of an hour to an hour and one-half walk from the household, is relatively fixed in Ngileb. Except for three old people who have a small swidden in the spotty forest, all the households in Ngileb till the soil by plow. And all the land tilled by the Gaddang is "owned" by Gaddang. In some cases the land is registered with the government and is

“legal”; in other cases, the land is “owned” by tradition. This does not mean that all Gaddang households own land – some households lease land from other households on a yield-share basis. Significantly, the people perceive the land as owned by individuals and families. This view of land is markedly different from a swidden farming Gaddang who perceives that he has rights of usufruct to land.

In Ngileb, there are 32.6 hectares of farm land held (i.e., farmed) by the Gaddang. The average household holding is 1.2 hectares. The largest amount of land farmed by a single household is four hectares (not all at the same time) and the smallest is one-fourth hectare.

The basic steps in plow farming, repeated three times a year, is summarized in Table II.

**TABLE II**  
**BASIC STEPS IN PLOW FARMING**

Gaddang Term	Month	Activity
1. <i>matabas</i>	October	Clean the field
2. <i>maparagut</i>		Harrowing the field
3. <i>sikulan</i>		Burning the debris
4. <i>maradu</i>		Plowing the field
5. <i>maparagut</i>	November	Harrowing the field
6. <i>maradu</i>		Plowing the field
7. <i>maparagut</i>	December	Harrowing the field
8. <i>mamula</i>		Planting (tobacco)
9. <i>maradu</i>		Plowing the rows
10. <i>maparagut</i>	January	Harrowing the field
11. <i>malamun</i>		Weeding
12. <i>maradu</i>	Feb-March	Plowing the rows
13. <i>magatu</i>		Harvesting

Fifty-two percent of the households in Ngileb planted tobacco on nine hectares of land resulting in a very low yield of 4.1 bales per hectare. The largest amount of land devoted to tobacco by a single family was one hectare and the least amount was one-half hectare. Relative to the quality of tobacco grown in the Cagayan

Valley, the Ngileb tobacco was inferior and brought a relatively low price on the open market.

Seventy-four percent of the households in Ngileb planted corn. Fourteen and one-half hectares were devoted to this crop and the average yield was 19.6 cavans per hectare, a yield somewhat higher than the national average. Most of the corn went for home use although four families sold some of their yield on the open market.

Eighty-eight percent of the households in Ngileb planted rice. Three households did not plant rice: one because the family was newly arrived in the community, one because the head of the household was an old woman who obtained food from her son, and the other, because the household head was said by informants to be lazy. A total of 16.5 hectares were devoted to rice by twenty-four families. They produced a low average yield of 22.2 cavans per hectare. Because figures such as this are potentially misleading and because of the importance of rice to the Gaddang, a more detailed examination of holding and yields is worthwhile.

Only one household in Ngileb planted as much as two hectares of rice. One household planted 1.5 hectares. Sixteen households planted one-half hectares and one household planted one-fourth hectare. And, as noted, three households planted no rice. In short, most of the people at Ngileb planted only one-half hectare of rice. The highest yield was twenty-nine cavans per hectare and the lowest yield was 12.5 cavans per hectare.

While traditional Gaddang swiddens were characterized by a large number of cultigens (e.g., mung beans, cowpeas, eggplant, squash, yams, etc.), Ngileb plow farms are lacking in this diversity. A few of the families have small garden patches around their houses but they do not produce significant amounts of food.

Fruit trees, however, owing to the number of years Ngileb has been occupied by Gaddang, are more common than would be found in a swidden settlement. For example, I counted (with the help of informants) 44 mango trees, 28 avocado trees, 17 jackfruit trees, 25 coconut palms, 82 banana plants, 20 star apple trees, 10 orange trees, 132 coffee bushes, and 21 betle palms in Ngileb.

## SUMMARY AND DISCUSSION

Swidden cultivation and plow farming represent the cultural means by which the traditional Gaddang (represented by Pakak and based on my 1965-66 study) and the modernizing Gaddang (represented by Ngileb and based on my 1979 study) have adapted to different environmental niches: in the first case, to a generalized, and in the second case, to a specialized habitat. The changes in economy and society that have occurred among the Ngileb Gaddang, due in large part to their ability to adapt to a specialized environment through technological means, may be succinctly summarized by comparing the Ngileb data with the generalizations on swidden cultivation presented earlier in this essay.

1. Ngileb is situated in an area where the predominant ground cover is cogon. Swiddens, reflecting a generalized environment, are not successful in cogon covered areas. Plow farming may be successful in this type of environment.
2. The twenty-seven households at Ngileb are located along a meandering path which creates a "picture" of a hamlet or localized settlement for its inhabitants. Swidden communities were smaller — five to fifteen households — and each house was located in or around a swidden.
3. The average number of persons per household in Ngileb is 5.5, approximately the same as found in swidden communities.
4. The household is the primary social and economic unit at Ngileb as was the case in traditional swidden communities. The major difference is there is much greater cooperation between related households because of the need for reciprocal labor agreements.
5. In swidden communities, one-half hectare was the typical swidden size. In Ngileb, the average household holding is 1.2 hectares.
6. The people of Ngileb perceive that individuals and families own land. Swidden farmers perceive the land as belonging to the Gaddang; individuals and families had rights to use the land.
7. The plow and carabao serve as the technological basis of Ngileb farming practices. Bushknives, axes, digging sticks and

- a knowledge of local environmental conditions served as the basis of swidden cultivation.
8. The Ngileb Gaddang divide the year into three seasons: tobacco, corn, and rice. Swidden Gaddang divide the year into two seasons, the rice growing and the "other growing."
  9. Swiddens reflect considerable cultigen diversity with many vegetable and root crops grown in association with the primary crop. At Ngileb, a field is devoted to a single crop. (It should be remembered, however, that fruit trees are more common in permanent field communities.)
  10. Rice yields at Ngileb are not significantly higher than found in swidden communities.
  11. Swidden farmers had little need for cash. The people of Ngileb rely heavily on cash.
  12. When a swidden was overcultivated, the household had the basic options of starting a new swidden in a nearby or distant area, or adopting plow agriculture. Because of the competition for land in the area (either from migrant Ilocano, Ifugao, or other Gaddang) the people of Ngileb believe that they must try to hold onto and farm what little land they possess.

A comparison of the Ngileb data with data from more traditional pagan Gaddang settlements demonstrates the significance of changes in agricultural technology. A serious modification in the way people farm their land can stimulate a change in the environment, the location of houses in the settlement, cooperative labor agreements, farm size, land ownership, equipment needs, crop diversity, cash needs and community stability. All of these factors contribute to an erosion of a people's cultural identity.

In 1970 I noted that the Gaddang were rapidly running out of forest land in which to make their swiddens.<sup>9</sup> It seemed clear that because of competition for land from outsiders and their own occasional practice of overcultivating the forest, they would have to adopt a new agricultural technology if they were to survive as a population and as a cultural entity. In my analysis, it was only a matter of whether the Gaddang would choose or be forced to make the transition to a new technology and a peasant way of life. This process of change, as illustrated by the people of Ngileb, is

9. Wallace, *Hill and Valley Farmers*, pp. 8-29.

accelerating. The people at Ngileb still believe that they are culturally pagan Gaddang and continue to hold to many of their traditional beliefs and practice their traditional rituals. Concurrently, however, their economy has changed markedly in recent years and new modes of social organization are forming. Their destiny as a viable cultural group and Philippine minority is still in question, although my preliminary analysis suggests that the Gaddang are beginning to lose their traditional cultural identity.