

CHANGING MAYA LIVELIHOOD IN THE FOREST OF QUINTANA ROO: FLEXIBILITY AND FREEDOM

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The forest of the Yucatan Peninsula has represented many different things to people over the centuries since the Spanish conquest—to the people who have lived in it, contemplated it from the shifting boundary of its frontier, or shaped plans and policy with regard to it. At times and for some it promised refuge from the exactions of Spanish overlords and clerics, and from their nineteenth- and twentieth-century counterparts. For still others it was a sinister hideaway of indolent, heathen and rebel Indians. While some fled from the settled towns and villages of Yucatan to begin new lives in the vast expanses of sparsely-populated and unadministered forest—driven there by war, epidemic, famine, drought and the multiple burdens of colonial town life and post-colonial plantation laboring—others were sent there at gun point to end their days in misery as soldiers and political prisoners—fighting hostile Indians, noxious snakes and insects, disease and malnutrition all the while laboring for the profit of corrupt civil and military officials. For the Maya peasants who have made it their home, the forest has long been the matrix of their livelihood as slash-and-burn farmers and forest hunter-gatherers. For still others, some of them Maya too, the forest has been a resource of commercial value, the source of semi-tropical forest commodities which have found increasing demand in national and international markets. Livelihood and sudden prosperity, the means for living and a way of killing, a haven and an exile, a sacred place and a place of chi-

cle-gathering camps and terminal points of international trade networks, the frontier of Spanish- and English-ruled worlds and the heartland of autonomous Indian rebels and fugitives—the forest of the Yucatan Peninsula has been all of these and more during the last five centuries on into the present. And the forest has been changed for all of it, too.

Those who have studied the people of the Yucatan Peninsula, whatever the topic or historical period of their researches, have inevitably had to consider the forest. Political and economic history, missionization and religious change, agriculture, temple building and the decline of a civilization, the history of wars and revolutions, as well as concerns about development and the future—these are each stories about human endeavors and human potentials both enabled and constrained by the existence of the forest. They are stories too about human actions which have and will change the forest, for better or for worse. It is far beyond the purposes of this paper to review the many links established between historical processes of social and cultural change and the environment of Yucatan. For now the point is simply this: that any human action which relies upon the forest, and which subsequently alters it, has multiple ramifications in other and subsequent realms of life and livelihood. Changing uses of the forest by those who live within it and those who come to exploit it, though agro-economic in their most narrow sense, sooner or later evoke for all con-

cerned grander issues of freedom and slavery, peace and war, progress and decline. Such was the case, at least, in my own studies of agricultural change among forest-dwelling slash-and-burn corn farmers of central Quintana Roo; perhaps then this case will serve to instantiate the more general point of this paper, a point to which I will return later.

AGRICULTURAL CHANGE: INTENSIFICATION AND DIVERSIFICATION

Observations made during fieldwork in the late 1970's among Maya Indians of central Quintana Roo indicated that corn farmers of that region were diversifying their repertoire of agricultural practices, in particular through adoption of small-scale irrigated gardening. While minor developments in and of themselves, those observations coincided with fragmentary reports of numerous field investigators over the last half century, suggesting a general trend under way towards the intensification of agriculture in the forested lowlands of the Yucatan Peninsula (Sullivan 1983).¹

Though slash-and-burn cultivation of maize has long been the principal productive activity of Mayas in the broad expanse of the forested lowlands (outside, that is, the henequen-producing areas of the state of Yucatan itself), over the last decade or so archeologists have amassed considerable evidence for the ancient practice of various forms of intensive cultivation—raised fields, ter-

acing, fencing, swamp drainage, among others. Hence, a trend towards intensive cultivation in the present should perhaps be spoken of as re-intensification. By the term "intensification" I refer to related changes in land use, laboring, and techniques of cultivation—a shortening or elimination of rotational fallowing, an increase in units of labor expended per unit of area cultivated, an increase in the use of capital and the creation of permanent or semipermanent agricultural infrastructure (cf. Boserup, 1965; Brookfield, 1972; Turner and Doolittle, 1978). It is of little analytical value to simply dub a particular form of cultivation or a system of agricultural tasks as "intensive"; what is or is not an intensive practice is relative, after all, to other practices actual or potential, past and present. "Intensification" however, encompasses not only actual practice but the historical development of contemporary practices. Within an historical perspective upon agricultural practices and land and forest usages, it is a label for a set of related trends and developments; the use of the term signals that our analysis will consider the relationships between contemporary practices, the multiple factors which have shaped them, and the varied consequences of them.

The potential impact of intensification or re-intensification upon both Maya household economies and upon local forest ecology would be complex and no doubt significant. From that expectation derived a project to document the multiple forms of such intensive cultivation, the distribution of their practice among communities and among cultivating households in individual communities, their relative importance and the factors promoting their development among people otherwise dedicated to extensive subsistence-

¹I realize that the term "intensification" as applied to agricultural change in Yucatan has been used elsewhere to refer to another aspect of that change: the shortening of fallow periods in corn farming itself, along with reduction in the number of species and varieties of plants cultivated through intercropping with corn (cf. Alonso 1979).

oriented swidden farming. The region of interest in this regard included central Quintana Roo, particularly those parts bordering upon southern and western Yucatan—an area undergoing repopulation since its abandonment during a nineteenth-century Indian war.

That research is ongoing and these results are, therefore, preliminary. In the meantime a major study of related developments in southern Yucatan's Puuc Hills region has appeared (Ewell, 1984) as well. The results of fieldwork in central Quintana Roo have revealed, however, a significant though instructive flaw in the original conception of the research. Simply stated, it underestimated the flexibility of those slash-and-burn farmers to annually allocate their productive labors (as well as other personal and collectively-disposed resources) among various production and income-generating alternatives, and to do so in ways which do not foreclose future options (those of the next season or future years). Though quite independent of the process by which I came to think and write about flexibility of Maya agriculturalists, it is surely no coincidence that Ewell has arrived at and written about farmers in the Puuc Hills region in strikingly similar terms—there are differences of note, as well.

The flexibility of slash-and-burn corn farmers in central Quintana Roo is evident enough with regard to annual changes in acreage under cultivation, for example; or with regard to the location and number of cultivated plots. Mayas of central Quintana Roo are shifting cultivators insofar as they annually work in different forest locations. They do not move settlements, however, so the term "shifting" is used here in a manner like that of Carter (1969:130). And factors beyond the ex-

clusive control of the cultivators introduce still further degrees of variability in each season's round of agricultural activities. Annual variations in the timing of rains affects the scheduling of labor in agricultural tasks, while the quality of the burn in slash-and-burn systems also affects the timing, difficulty, and outcome of most subsequent tasks as well. These are well-known sources of variability in the practice of swidden cultivation on the Yucatan Peninsula—features which methods in the study of such a system must be adapted to take into account. See, for example, Thompson (1974:59) on the effect of inadequate rainfall on at least temporary migratory wage employment; Redfield and Villa (1962:52) and Steggerda (1941:113, 134) on annual variation in yields and acreage under swidden cultivation; and Conklin (1963) on general considerations of variation in the parameters of swidden systems. The data of a single season, though it be collected from many cultivating households, may seriously misrepresent either multi-season averages or trends in acreage under cultivation, yields, and so on. And during a single season, small differences in the timing of each household's activities can produce marked differences in the success of that season's efforts—though a season be a good one in terms of the arrival of rains and the absence of serious plant diseases and pest infestations, a household that is a few days late in burning their field in anticipation of planting can find itself having a disastrous agricultural year.

The phrase "intensive agriculture" or "intensive cultivation" suggests, often, the at least partial abandonment of such variability and flexibility. Speaking for the moment of irrigated works in particular, without regard to their size or scale: there is now infrastructure

to maintain, there are allocated rights to water and land that must be managed and defended, there is a reduction or elimination of fallow periods; and there are new expenses incurred in obtaining seed, chemical inputs, machinery, tubing, and so forth—debts incurred which can give others interest in and some control over production processes. There is, in a word, constraint to the drastic reduction or expansion, not to mention relocation, of the sites under irrigation. That, at least, is to be expected. Ewell has described the varying degrees of these and other constraints upon different types of irrigation units in Yucatan (1984).

When cultivators in central Quintana Roo begin to allocate at least a part of their labor to intensive cultivation on a small scale, however, they do not necessarily surrender the annual flexibility which characterized their once more exclusively swidden regime. Irrigated houselot gardens, larger irrigated truck gardens, and even multihousehold irrigation units constitute part of what it is to make a living in many contemporary Maya communities of central Quintana Roo. But these are forms of cultivation whose features—acreage, cultigens, scheduling, chemical inputs, and product disposition, etc.—are themselves quite variable within certain limits. Cultivators in central Quintana Roo may shift from work in intensive cultivation to work in more extensive cultivation either during the course of one season, or from one agricultural season to the next. Their ability and their need to do so derive from the nature of the intensive and extensive systems of cultivation which they practice. They derive as well from the cultivators' individual and collective experiences

with diverse forms and conditions of laboring over long periods of time. Erratic yields from rain-fed agriculture, the instability of price which has plagued some agricultural commodities, changing funding levels of government programs in agricultural and forestry development, the attraction of temporary, alternative wage-earning opportunities in distant towns and tourist centers—these are all factors of the first sort in the nature of the intensive and extensive agricultural systems within the context of contemporary Quintana Roo economy. A vivid oral history of forced labor on the agricultural and cattle estates of Yucatan, the vestigial hostility toward non-Mayas born of that experience and the experience of a long and bloody war, and an understanding these people have concerning the transitory nature of things as they are at present—these are factors of the second sort, part of individual and collective experiences in the world.

The flexibility mentioned earlier is a product of the interaction of such factors, and it can be studied in terms of them. Presented below, then, is the evidence and the nature of that flexibility, and a discussion of the problem it raises for considering agricultural trends in the region in terms of such concepts as intensification and its obverse, disintensification. Finally, and in keeping with the broader issues of forest use and the nature of the forest for those who work and live in it—issues hinted at earlier in this paper—some ideas will be offered concerning the relationship of this observed flexibility and the preservation of the forest matrix of Maya livelihood and freedom. First, though, some information must be provided about the people and places of this study.

MAYA COMMUNITIES AND CULTIVATORS OF CENTRAL QUINTANA ROO

The area under study lies roughly within the two adjoining municipalities of Felipe Carrillo Puerto and José María Morelos, Quintana Roo. In this area of approximately seven thousand square miles there are fifty-one thousand people (about seven people per square mile) living in some two hundred and fifty settlements. Most of the settlements are situated on *ejido* land, land granted through application of the Federal Agrarian Reform; there is very little private property in land and forest in this part of the Yucatan Peninsula. Though agrarian censuses count some two to three hundred lots on which cattle are raised with pasture accounting for less than two percent of the area under consideration here (Quintana Roo, 1982:92), slash-and-burn maize cultivation is the principal productive activity within this region still largely covered by a low, semideciduous forest. Most of this forest, it seems, has been felled at least once within the last twenty years.

Most people who live in these settlements are descendants of fugitives and rebels who fled to the virtually uninhabited forest during the nineteenth-century Indian rebellion known as the War of the Castes (Reed, 1964). Perhaps as many as one hundred thousand Mayas entered the southern and eastern forest during that war, though by 1915 their number had declined to probably no more than five thousand in all of what is today the State of Quintana Roo (making for about five people per hundred square miles).

The work of Mexican anthropologist Alfonso Villa Rojas, who conducted

fieldwork in central Quintana Roo during the mid-1930's, provided the first detailed study of those forest-dwelling Maya. What Villa had to say about Maya agriculture as it was in the 1935 and 1936 seasons is of particular interest here. At that time the average area farmed per household—via slash-and-burn methods—was about nine acres (or five acres per laborer). Villa reported yields of corn averaging between four and nine tenths of a metric ton per acre in what he called virgin soil; roughly half that was obtained in plots farmed for a second consecutive year or on a short fallow rotation (i.e. less than ten years between cultivations). He further noted that almost eighty percent of the farmers planted at least some of their corn in long fallowed or "virgin" forest lands, accounting thus for forty percent of the total area under cultivation (Villa Rojas, 1945:61). Mayas who Villa studied were, in other words, farming in what was at that time long-fallowed, virtually abandoned forest.

They were enjoying good yields of corn for their efforts; close to five metric tons of corn were harvested per household per season. Villa was careful to note that the figures he provided reflected the harvests of relatively good years, those in which rains had come in sufficient quantity and with due spacing. Yet the harvest of such good years was sufficient to tide a household over the inevitable two or three lean years as well, since in those days little corn was taken to market. Villa found the average man spending only one hundred and forty days of the year in agricultural labor during the 1935-1936 season; and only one hundred and eighty-six days per year were spent in all productive activities, agricultural as well as non-ag-

ricultural—the latter included bee keeping, chicle gathering, and hunting, in particular (Villa Rojas, 1945:77).

Today, few if any Mayas make a living through slash-and-burn corn farming alone. Hunting, chicle gathering, commercial apiculture, houselot and truck gardening, and often laboring for wages in town or on government-sponsored rural development projects are essential elements of the economic activities of any viable Maya household. And for still others, cattle raising, wholesale and retail marketing, and lumbering are important. Largely absent are the craft industries widely reported for Maya communities in parts of Yucatan. That absence notwithstanding, Maya household economy and Maya work histories are as complex in central Quintana Roo as those reported for other parts of the peninsula (Alonso, 1979; Ewell, 1984:142).

Slash-and-burn farming has changed subtly over the years, and the change has been significant. It is partially responsible for people's present-day search for alternative means to livelihood; it is partly a result of that search. When asked today what the corn yield in a "good" season would be, people of the region most often cite the native equivalents of four-tenths of a metric ton per acre. That is precisely the yield which Villa reported as the average for the mid-1930's. But that yield, in fact, is seldom obtained anymore. During the first year of my field research in central Quintana Roo, corn yields were pitifully low—little higher than one-hundredth metric ton per acre. That was in 1978. As the harvest of 1979 came in, people spoke of it as a relatively good year, though yields were still as low as a tenth of a metric ton per acre for some households. The areas

under cultivation were substantially greater than they had been back in 1935, however—up fourteen percent per household and seventy percent per laborer. In the early 1980's harvests were reportedly even better, approaching what is locally considered optimal. But one or more seasons of poor yields had led, in turn, to reduced acreage under cultivation. Would-be cultivators had to temporarily seek income elsewhere, working for wages in town, in road construction, at Caribbean resorts, and elsewhere. And some had become wary of spending cash to expand area under cultivation through the hiring of laborers among their neighbors, relatives and acquaintances. So even what were called "good" years were poor agricultural years for many farming households.

Though for reasons mentioned earlier the data of even several seasons of slash-and-burn cultivation may misrepresent significant trends in yields and areas under cultivation, my field data at least coincided with numerous reports made by cultivators themselves to the effect that these years they are working longer in agricultural labors but getting less for it than they or their predecessors did as recently as several decades ago. The factors behind such an apparent long-term decline in the viability of slash-and-burn agriculture in central Quintana Roo are no doubt numerous (Sullivan, 1983). What is more relevant here, however, is that Maya mention the fact of that decline when they speak of their search for new forms and techniques of agricultural production—particularly when they express interest in forms involving irrigation on a small scale of marketable crops of vegetables and fruits.

CONTEMPORARY ALTERNATIVES IN INTENSIVE CULTIVATION

Small-scale irrigated cultivation in central Quintana Roo at present takes three related forms—houcelot gardens in raised beds with associated cribs or platforms (called *ca'anche'*), gardens which cover at most a few hundreds of square feet; larger truck gardens ranging up to almost half an acre in area; and collective or multihousehold irrigation units ranging in size from two and a half to twenty acres or more, often but not always established and maintained under supervision of one or more government agencies concerned either with agriculture or Indians. The picture of agriculture and agricultural change in central Quintana Roo involves more than just those three forms and scales of irrigated gardening. But those three forms are closely interrelated in ways which go beyond the fact that they each involve dry-season applications of water to crops other than the staples maize and beans. The nature of their interrelations will be made clear shortly. First, some further description of each form and scale of irrigated cultivation is in order.

All of the land and the forest of central Quintana Roo has been subject to the Federal Agrarian Reform and made accessible to cultivators only by virtue of their membership in one or another agrarian community. (There are a few private ranches in the area, seasonally occupied by corn farmers and small-scale cattle raisers, people who are otherwise also members of agrarian communities.) Except for the largest of towns in the region, while communities have access under federal law to areas of the forest varying in extent in accordance with their respective populations (grants range from ten to three

hundred square miles), they include settlement areas of rather uniform size—about one hundred and twenty-five acres for houses, houselots, stores, roads, schools, churches and parks. Much of the settlement area is in turn divided into houselots of uniform size approaching the maximum allowed under the agrarian reform, six-tenths of an acre. Very little of the houselot space is occupied by the house structures and the shelters and corrals of domestic livestock.

Whether any of the remaining portion of the houselot is cultivated depends upon several factors, the most important being the quality of the land itself. Some lots are simply too rocky; though ideal for dry houses, they are unsuitable for gardens and orchards of any but the smallest size. Most houselots, however, are at least partially cultivable without extensive modification of their topography by terracing, for example. They all contain at least a few trees for fruit or shade, as is typical of houselots throughout the Maya lowlands (See, for example, Smith and Cameron, 1977; Wilken, 1971:441; Ewell, 1984). On the other hand, one seldom finds staple crops such as corn and beans cultivated within the boundaries of a houselot, except for those on the edge of villages, opening into adjacent cultivated forest clearings.

A variety of vegetables for home consumption and market are cultivated within the walls of houselots. Radishes, onions, cabbage, lettuce, garlic, and coriander may be cultivated in rectangular earthen beds approximately six to ten feet long and some ten inches to a foot deep. Maya speakers refer to these beds by the Spanish word *era*, and they were taught this form of gardening about ten years ago by extension agents of the Department of Public Education. Mayas in

the State of Yucatan have apparently been making them for decades, on the other hand (Redfield and Villa, 1962:46). Preparation of the beds involves loosening the thin soil of house-lots, removing stones, and gathering from elsewhere black soil which will be mixed with the houselot soil in order to form a more fertile garden matrix. The beds are constructed anew each dry season through the labor of both men and women in a household; their watering and tending thereafter, however, is primarily the dry-season activity of women. Women also are the ones who periodically harvest the beds and take small quantities of the produce to market for sale. These gardens are almost nowhere to be found during the months of the rainy season.

Tomatoes, varieties of chile, and watermelons are also cultivated in houselots, though not in the beds just described. Rather, they are planted in rows of serial, shallow depressions called *pozetas* "little wells." These are not exclusively dry season crops—particularly not the chile which yields for more than a single year. The cultivation of such crops in irrigated *pozetas* is a development even more recent than the cultivation of raised beds; it results from recent experiences of Mayas in government-sponsored multihousehold irrigation units. More about that shortly. (It should also be mentioned that these crops have long had their intercropped, rain-fed counterparts as part of traditional slash-and-burn corn farming in Yucatan and Quintana Roo.)

One further feature of houselot cultivation must here be mentioned—cultivation of herbs, seedlings, and small vegetables in raised cribs or platforms called *ca'anche'*. Such cribs stand chest-high and may be as small as twenty-five or as large as fifty-five square feet,

rarely larger still. The cribs are filled with five to six inches of a rather average variety of local soil called *kancab* (slightly reddish-orange in color) topped with another five to six inches of a more scarce and valued black soil brought to the houselot from the hollows of forest hillocks or from the base of trees where horses and mules are usually tethered. A variety of herbs, both culinary and medicinal, are planted in these cribs, along with small quantities of produce for market and for household consumption. They include garlic, onions, and tomatoes as the most important marketable produce. Finally, some crops destined for transplanted intercropping in cornfields—for example a variety of chile which is grown in the cornfield under rain-fed conditions—may be first planted as seed in the cribs or even in the beds described earlier. Raised platform cultivation of this sort is decidedly *not* a recent development, nor is it local, though its uses in other parts of Yucatan vary widely (Wauchope, 1938:132-33; Redfield and Villa, 1962:46; Vargas, 1983).

Raised beds, rows of *pozetas* and one, two or even three crib platforms are watered during the dry season either by hand-drawn well water or by water supplied through potable water systems at houselot outlets. The cultivation of such gardens is primarily a dry season activity and the work of women.

Truck gardens and sites of permanent cultivation. At the peripheries of villages may be found unoccupied houselots under dry season irrigated cultivation. Though still lots cultivated by individual households, the scale of cultivation now exceeds that possible within most occupied houselots. Of such peripheral lots given over to truck gardening, I have found some ranging in size from five thousand square feet to over half

an acre. The crops planted in them are irrigated by hand-drawn well water or by water carried in buckets from the nearest outlet of a village's potable water system. Currently, watermelons are the crop most commonly chosen for cultivation in such irrigated lots. The crop is destined for sale, either in village or town. But there can be just as great a variety of plants cultivated in such peripheral lots as there are in houselots on the one hand and cornfields, for example, on the other. In one such lot I found under simultaneous cultivation not only watermelons, but also cantelope, pineapple, sugarcane, onions, radishes, squash, manioc, yucca, tomatoes, a very small number of corn plants, and several young fruit trees including bananas, mammey, custard apple, and limes. There were also several other edible leaf plants and herbs. Such single-family irrigated lots are not yet very common in the region of this study; it is unusual to find more than several in a village of even a hundred households.

Irrigated lots of comparable size cultivated by individual households may also be found well beyond the village perimeter (and therefore beyond access to the potable water network). These are located in or near what locally are called ranches (*ranchos*, even in Maya), though by this term is not meant fenced tracts of private property devoted to cattle raising. Rather, such ranches are something more akin to seasonally-occupied hamlets utilized by several related households who make their cornfields and tend their bee hives (perhaps even usually hunt) in that particular part of the forest year in and year out. In the past some Mayas kept one or two hundred head of cattle on fenced pastures in the immediate vicinity of such ranch hamlets; but while

such cattle raising is for the most part a thing of the past, the ranches continue to serve as domiciles far from the main settlement but close to customary work sites—very handy during harvest time for example. And those sites include small areas of irrigated gardening, as well. Ranches are always situated near abandoned wells or water-filled sink holes (*cenotes*), so their occupants have the option of preparing beds or rows of *pozetas*, cribs, and other kinds of small gardens much like those found in the main settlement's houselots. Those gardens may in fact be somewhat larger than is customary for houselots—longer beds, more chile plants, and so forth—yet still smaller than those of the multihousehold irrigation units from which the techniques of their cultivation in part derived.

Multihousehold irrigation units. Between 1977 and 1982 both federal and local government were actively encouraging and supporting the start-up of multihousehold irrigation units throughout central Quintana Roo. In the community which I came to know best, a village called Tuzik, men from fifteen households worked under the direction of several local and federal agencies to begin just such a project. The unit was five miles east of the main settlement, on the only tract of more fertile black earth to be found anywhere within that part of the forest. The site was chosen also for its deep well, the abandoned water source of a colonial-era or perhaps nineteenth-century ranch. To facilitate the project the government financed construction of an all-weather road running from the main settlement to the irrigation site; and over the years which followed, they provided seeds, cuttings, fertilizer, and other chemical inputs, a water pump and plastic tubing, hand tools, and small

amounts of food and credit. Agronomists visited the site regularly and employees of the National Indian Institute provided some marketing advice and, for a while at least, free transportation to the marketplaces of distant tourist centers of the state.

For those Maya cultivators who joined the project, the work of the irrigation unit marked a radical change in production organization and techniques. Men of the unit (after the first year their number had dropped to ten) worked collectively at a wide variety of new tasks—digging the *pozetas* in which to plant new varieties of tomatoes and chile, for example; applying fertilizer, insecticides, and herbicides—materials which they had never handled before; hauling water and redirecting tubing and hoses; constructing seed beds and transplanting seedlings, and so on. And they had to learn how to operate and perform minor maintenance on the mechanical pump. It was only the final income from the sale of the unit's produce which was distributed among the members, along with unsalable produce, that is. The men chose irrigation unit officers so that their names might duly appear at the bottom of the many petitions they prepared for government assistance; but in practice decisions were made collectively at frequent, informal meetings of all unit members. There was no differentiation among the men with regard to the nature of the tasks they performed nor the share of the proceeds which they took. No women worked at the unit.

During much of the first two years of the unit's development, men worked at it five or six days each week, returning late every afternoon to their homes in the main settlement. Some had other business in that part of the forest as well—their cornfields and bee hives, for example.

The men of the unit originally planned to clear and cultivate up to two hundred and fifty irrigated acres. At the end of their first year's labors, however, they had planted only twenty acres, those in watermelon, chile, melons, and fruit trees; in the subsequent year tomatoes were added to this short list. The area cleared and under cultivation at this unit never came to exceed those initial twenty acres.

Other options. There are many other alternative production and/or income generating activities to which Maya cultivators of this region have recourse. They may expand on their bee keeping, raise a few head of cattle and pigs, participate in the seasonal gathering of the latex of the sapodilla tree (*chicle*), function as middlemen in the regional trade in forest produce, or dedicate themselves more regularly to the nocturnal hunt for deer and other game. They may also hire themselves out as wage laborers in agriculture to people much like themselves either there in their own communities, or in others; or they may seek wage labor still elsewhere, particularly in road and building construction. They may emigrate seasonally to sugar-cane producing regions in the south of the state, or permanently relocate to one of the growing tourist centers in the north. These are just some of the ways people of the region either supplement their primary production efforts in slash-and-burn corn farming or opt out of that way of life altogether. My cursory listing of these as "options" is not meant to imply that individuals can choose freely and casually among them, as though each did not have its own particular constraints and limitations. I simply mention them as part of the total picture of agricultural change in central Quintana Roo.

STRATEGIC FLEXIBILITY

A preliminary survey of forms of intensive cultivation in central Quintana Roo has revealed a more complex picture of agricultural change than was anticipated on the basis of earlier research.² As expected there were many communities where multihousehold irrigation units could be found. But there was little evidence justifying talk of a *trend* either towards or away from reliance on that particular form of intensive cultivation. In some communities small irrigation units, working with either pump- or hand-drawn water, had been functioning for only a year or so, but seemed to be doing well. During the summer of 1984 there were units of as few as three men (Dzoyola) and as large as twelve (Yaxley) harvesting tomatoes and watermelons, more often than not from fields irrigated by hand-drawn water. In other communities, however, such labors had been abandoned already. Twenty-five men left the ten acres they had cleared when their pump broke down in the midst of the dry season, and the crop was lost (San Felipe Barrioababal); in another community (Saban) twenty acres were abandoned for similar reasons. And finally, in some communities similar problems had led to the suspension but not, it seemed, complete abandonment of irrigated cultivations—weeding of fruit trees continued, regrowth was cut back from time to time, while project members continued to solicit government aid to restart the full operation of their units (Xcantzepchen, Tuzik).

²Communities visited for the purposes of the survey of intensive cultivation included San Felipe Barrioababal, Dzoyolá, Yaxley, Sabán, Xtrapich, Dzulá, San Francisco Aké, Filomena Mata, Tuzik, Chan Chen Comandante, Melchor Ocampo, Xa'an, and Xcantzepchen.

Tuzik was one of those places in which the irrigation unit begun some years earlier was by 1984 in a state of abandonment. The fifteen men who had started the unit back in 1978 had been prompted to do so both by the dearth of corn in those years of very poor harvests, and by the promise of higher incomes through this new agricultural activity. But the group in fact never realized those higher incomes, nor did they find the burden of their labors lessened. On the contrary, those men working with the irrigation unit found that their efforts need by constant and unrelenting, and that the labor was tedious at that—hauling water from a deep well several hours every morning and afternoon, day after day, for months on end (the pump had yet to be installed); weeding and fumigating and guarding irrigated tracts against various kinds of pests; clearing new tracts for the expansion of the unit; preparing seed beds and re-planting once those beds had had their seedlings removed and transplanted. And the work required a new labor discipline—plants would die if not watered regularly (watering now a man-made rather than natural event); insect and animal pests would thrive if not held in check; and the interest and support of government might wane if the pace of the unit's work were seen to appreciably lag. The work schedule and discipline required for irrigation was markedly different in kind from those to which these once autonomous slash-and-burn corn farmers have long been accustomed. That fact was given formal and succinct expression by the members of the irrigation unit themselves when they found it necessary to establish and sign the following written agreement:

Act of Agreement

The 24th of April of 1979 there took place a meeting of the members of the irrigation unit of the ex-hacienda of San Antonio. Those who sign below express their conformity with the agreements of that meeting concerning how to continue the work at the irrigation unit. Said agreements are: 1) That on Mondays begins the work and the work continues daily until Friday; 2) That if a day of work is lost between Monday and Friday, that day is made up on Sunday.

Long past, it seems, were the times when half a year's effort alone—efforts scheduled according to nature and one's own inclinations alone—might provide for the substantial portion of the household's subsistence needs. Despite their hard labors—eased a bit when a pump was finally provided and a large water storage tank was constructed—the work was far less rewarding than the unit's members had expected. The prices of their produce were unstable. At the same time that they encouraged men of Tuzik to turn to irrigated agriculture, those concerned with the economic development of the region were promoting similar activities in at least seven other nearby communities. When watermelons were ready for market from Tuzik, they were arriving in town from half a dozen other units as well; as a result the price fell with short-term gluts. So too with chile and tomatoes in their turn. Late in the second year of the project, members of the irrigation unit were going further and further afield to sell their produce. Yet still they found market gluts and few buyers. They considered converting much of the area then under irrigation to a less labor-demanding orchard regime.

That, eventually, is just what they did in Tuzik, at least until their pump ceased functioning. In the meantime the number of households involved in the project declined to three, and those left found themselves unable to keep up with the weeding required (given that they still had their other productive activities to attend to as well); by the summer of 1984 they were considering asking the government to assist them with credit to either hire the necessary labor, or to remunerate themselves while they do the weeding.

But, as I suggested earlier, one cannot discuss agricultural change in Quintana Roo while only focusing upon one household, one project, or even one community. Many irrigation projects went into decline, and for very similar reasons. But at the same time new ones were starting up, some spontaneously, rather than under government sponsorship. In the 1980's the federal government brought to Quintana Roo a new agricultural and forestry development program which dwarfed in scale those of the late 1970's irrigation schemes, and which took root in many communities alongside the either nascent or moribund irrigation units. *COP-LAMAR* was the name of a project which combined in multihousehold production units the production of corn, small amounts of irrigated tomatoes and chile, cattle raising, reforestation (in marketable species such as cedar) and some orchard culture. Men were paid weekly wages for their labor in the unit, as long as there was money in the program's budget, that is. The money ran out in the middle of 1984, however, in the midst of the nation-wide financial crisis of that year. Work ground to a halt; some *COPLAMAR* assets were seized by peasants in various communities, peasants claiming several

weeks overdue wages. The project appeared destined for dissolution.

It is beyond the purposes of this short paper to assess the successes and failures of government-sponsored projects in Quintana Roo. The point here, rather, is simply this: the projects and the employment which they generate, from the point of view of cultivators in the region, come and go like the seasons themselves. Or perhaps over longer periods of time one can liken the comings and goings of the projects to climatic changes of a transitory but multiseason sort. Both affect the allocation of labor among various possible productive tasks and pursuits in the forests and the towns. Both produce, in that sense, patterns of shifting agricultural activity and shifting labor use in general. And both have their local variations as well—just as the rain can fall and slash-and-burn cultivation succeed in one community, while cultivators fail miserably in the next, so too a project can be in decline in one locality and in ascendancy in the next. Perhaps, one might say, this is all just part of unstable government finances in the 1980's, or the inevitable result of trial and error in agricultural development—something which in the long run will yet produce permanent changes in productive infrastructure and agricultural practice. But as the years pass and the short run becomes the long, an entire generation of cultivators is raised in a world where among the unpredictable factors governing the nature and success of their laboring are added the effects of markets, federal budgets, international debt, taxation, and the changing state of the art in tropical forest development. Such people remain shifting cultivators of a kind, though they leave behind a once exclusive reliance upon slash-and-burn techniques.

There is a second point about this apparent flexibility in the annual disposition of labor by Maya cultivators of central Quintana Roo: flexible is just how they want things, for the time being at least. They are not people who have occupations such as we do. People in the region do not labor at their *job* and experience periods of employment and unemployment, for example, as the market for their labor evolves. These are people for whom laboring is a way of life, a way of life they wish were not so hard, but which at the least they hope will continue to present many options to livelihood in a time of uncertainty and change. A colleague of mine has used the phrase “strategic flexibility” to refer to a rather similar attitude and approach towards livelihood on the part of West Indian migrant workers (Carnegie, 1982). The phrase referred in the West Indian discussion both to a particular pattern of observed behavior and to a set of expressed values or preferences. In the realm of behavior it described both a pattern of rapid adjustment to whatever economic opportunities happen to come along, as well as to the active building of options through establishment of relationships with many new people, through the picking up of odd skills here and there, the constant gathering of information from diverse sources regarding employment opportunities near and far—options which might serve as a hedge against future and chronic job insecurity. As a set of expressed preferences, “strategic flexibility” referred to something which people apparently talked about quite explicitly in many different contexts of Caribbean life.

On both scores—behavioral and expressive—the phrase “strategic flexibility” captures something of Maya livelihood in the forest as well. The be-

havioral aspects have already been mentioned—the changing parameters of slash-and-burn corn farming; the rise and fall of irrigation units; house gardens tended one year, neglected the next. To these can be added the reappearance of collective hunting parties which had in the late 1970's virtually disappeared altogether; the at least temporary shunning of decades-old practices related to the gathering of chicle (now that the market is closed to many in the villages); the chance appearance and pursuit, for several months now and then, of wage labor for any and all takers in local road construction, projects which once completed move on to other parts of the state. Even cattle raising on a very small scale is coming back after a thirty-year absence in many communities. The employment and production picture in the region of this study is, in a word, ever changing. And it has been that way for about as long as anyone can remember. Almost as long, that is; for Mayas' remembrance of the past conditions of laboring and livelihood is detailed and also very relevant to their decisions concerning and their attitudes toward new labor opportunities in the present.

ORAL HISTORY OF LABORING

Mayas in the region of this study—as well as those beyond it, I fully expect—have much to say about the changing conditions of their lives as a laboring people. On a virtually daily basis they exchange information on market conditions in town, on the weather, on movements of game and the luck of hunters in different parts of the forest, on employment opportunities and the latest goings-on in the various government sponsored development projects of their respective communities. This and

other talk concerning the daily ebb and flow of opportunity and adversity takes place on street corners, in stores and marketplace, on the bus, and in many other mundane settings of everyday life. In addition to this sort of talk, however, there is talk of another kind and a different relevance: talk of the time of slavery passed, of the lives of servile laborers on nineteenth- and early twentieth-century Yucatecan estates; and talk of the time of slavery to come again, next time in a modern guise.

The oral tradition of slavery among Yucatec Maya is rich and varied. In stories of that time Mayas recall the conditions of servitude under which their distant predecessors labored. A few today are old enough to have seen the final days of slavery; many more knew people who had been slaves, and learned from them what it was like. So people today can describe in considerable detail the schedules and tasks of a slave's workday, for example: two o'clock in the morning one is awakened to rasp leaves of henequen, to extract from them the fibers that will later be made into twine and rope; then it's off to water the master's crib or platform gardens just as the sun is coming up; when that is done, a day's labor in the cornfields begins. In the evening there are still other tasks and just a little sleep before the next two o'clock call that starts the next day's tasks. Failure to perform the assigned tasks—to rasp the standard quantity of henequen, or work the proper extension of cornfield, and so forth—resulted in beatings and in extra labors the following day. Or so, at least, goes the oral tradition of slavery today.

Debt was the basis of such servitude, they say. One couldn't avoid incurring it; and once incurred, one could never get out from under it. A fellow from

one village in the region of my study described how it worked in these words (repeating, he said, what his grandmother had told him many years earlier): One made cornfields back then just like now,

"But the thing was,
everything you planted like that, if
you wanted to eat it, it couldn't be
eaten just like that.

You would tell your master how much
(you had taken).

You want to eat a couple of yucca
roots, you eat them, it's the same
story. 'Go ahead, boy, eat them! Eat
them!'

He (the master) grabs his booklet.
Harat harat. He scribbles it down,
the corresponding price. There's no
way out for you.

You are a slave.

If you want to eat squash or anything,
you tell your master.

'Eat it, boy!' He won't tell you not to
eat it. 'Eat it!'

He grabs his booklet. *Harat harat*.
He's scribbling it down.

You'll never get out of it.

You are a slave."

Conversations like that from which the above fragment was excerpted may go on still further, to elaborate other details of slavery as it was: the servile labor of women, the hunger from which many suffered, suicide and flight and the war which slavery provoked, they say—the War of the Castes, that is. And such conversations shade easily into talk of present forms of laboring and indebtedness, as Mayas today speak of the return of slavery prophesied long ago and manifest already in the present.

Whether we consider Mayas of central Quintana Roo as at all justified in speaking of contemporary developments in terms of the prophesied return

of slavery is quite beside the point. Even as, for purposes of this discussion, it is irrelevant whether their historical recollections of the nature of nineteenth-century laboring are precisely accurate, so too it is irrelevant whether reasonable people would or could find elements of servility or compulsion behind present-day work patterns. Rather what is relevant is simply that people there *do* talk of slavery, they find it in the changing conditions of their lives both as laborers and consumers, and they will act, if possible, to avoid it.

When these Mayas talk about the return of servile labor they are talking principally about this: They work long hard days, longer and more difficult labor than they recall was customary in times only recently passed, and they get so little for it. Inflation (running during the final period of this study at three hundred percent) is one manifestation, they say, of the return of slavery; indebtedness to government agencies and banks, debts incurred through programs of economic and agricultural development, is another. Unremunerated labor on public works, required of all adult males in Maya communities, is yet another. Corporal punishment was once the hallmark of a slave's bondage; but it has no place in the new. No, they say, the matter has been "studied", and slavery will come in a new form, probably based principally upon the manipulation of the supply and price of commodities. Yet the effect will be the same, particularly for those working on projects where they earn a wage rather than a share of the produce or the proceeds from the sale of the produce; or where their indebtedness to banks is greatest, as in cattle-raising cooperatives. Sooner or later, they say, someone begins to tell you where and when to work, and fixes what the returns to you will be. There

was a kind of security, they recall, in the livelihood of a slave of the past. The master provided food and clothing and shelter, yes. So the provision of the same today, the achievement of a kind of security as a ward of the government or a laborer on a government-managed project, does not obviate comparisons to the time of slavery—on the contrary, it makes such comparison seem all the more true. The condition of laboring is the index of slavery and freedom; not full or empty bellies.

Now it may seem that the discussion here has strayed quite far from the main topic of this paper—agricultural change in central Quintana Roo—into the realm of other peoples' idle-time talk. But the talk and the remembrance of the laboring conditions from which their predecessors escaped at great cost in lives and suffering does have bearing upon how Mayas of central Quintana Roo today live and labor in the forest.

First, they consciously seek to avoid involvements which might seriously limit their future options as laborers. Some groups have been formed in Maya communities for the purpose of raising cattle—cutting down swaths of the forest, planting them in grasses, and purchasing cattle, activities which entail heavy outlays of borrowed capital. But such activities are much criticized and shunned in other communities where it seems to people that such involvement turns cultivators into employees of this bank or that. Some of the critics themselves raise cattle, by the way—but a few head or a few dozen head on ranches which are devoted to a multiplicity of other productive uses as well.

In some communities Mayas have been reluctant to accept much-offered bank credit to finance expansion of acreage under cultivation in corn, acreage cultivated by traditional slash-and-burn

techniques. In the community of Tuzik a third or so of the village men did eventually enlist in such a scheme, but only years after their neighbors had tried it and after they themselves had overcome expressed fears of debt servitude. And after all of that, it was only for one year—a year when they happened to really need the money.

Secondly, Mayas consciously seek to maximize options, much like their West Indian counterparts for whom the phrase "strategic flexibility" was coined. Most send their children to school, some to trade schools at the secondary level. And the adults seek to learn as well new cultivation techniques for both rain-fed and irrigated agriculture. While multihousehold production units of the type promoted by the government come and go over the years, there is something quite tangible which remains and which needs to be considered when evaluating the impact of such projects. Ewell, writing about farmers in the Puuc Hills region of Yucatan, talked of the slow and deliberate accretion of equity by farmers who engaged in irrigated cultivation while remaining independent, to a great extent, of government projects dedicated to the same. The equity of which Ewell wrote was in the acquisition of parcels of irrigated land, the extension of irrigation canals, the introduction of improved varieties of fruit trees, and more. Infrastructure, in other words. Still independent cultivators in central Quintana Roo are far from developing equity of that sort. Perhaps it is simply too early to detect in this period of introduction of and experimentation with new modes of agricultural production. Perhaps things will never move in that direction for many reasons. In any event there is still a kind of accumulation of equity insofar as there is accumulation of knowledge—

knowledge which creates options for each year's disposition of labor.

While the government-sponsored projects come and go, what is learned in those projects is applied in the *houselot*, or in the single household garden on the village periphery or near water sources in the forest. The techniques are practiced there and so preserved. They are preserved in that same oral tradition that retains in such detail knowledge of the workday of a slave, or which recounts the rudimentary but ingenious technology of a war which their grandparents and great-grandparents fought. Mayas of this region have been learning also over the last five to ten years how to claim what they now consider their right to technical and financial assistance from a government which not long ago they considered quite foreign and predatory. How to form a credit group, how to write petitions, who to talk to for assistance, and how to talk to agronomists and other project personnel, what the relationship might be between their demonstrable labors in the field and the actions of agency directors in the towns—these are all part of the new experience of Maya cultivators in the forests of Quintana Roo, accumulated experiences which from season to season they can put to use in various ways. Press (1975:44-70) makes some very similar observations concerning a town in Yucatan, phrasing them in terms of the general theme of continuity with change.

FREEDOM AND THE FOREST

There are constraints to Maya flexibility in the uses of their labor, of course, and this brings us to the final point of this paper. Assuming that Mayas of central Quintana Roo (and, it seems, of other parts of the peninsula)

value flexibility in the disposal of their labor and of the products of their labor, assuming that they actively cultivate such flexibility in a changing environment, within what limits can such "strategic flexibility" function successfully or effectively? What are the preconditions for the achievement of such flexibility? Mayas themselves have commented upon some—avoid severe indebtedness of the sort which turns control of the production process, and of one's labor in particular, over to others more powerful and rich than oneself. But there are other constraints. One concerns the scale of the production options which Mayas alternatively deploy or abandon; and the other concerns the nature, the integrity, of the forest in which they live and labor.

Each of the various production alternatives which this paper has discussed are deployed on very, very modest scales in central Quintana Roo. The largest of the multihousehold irrigation units is twenty acres; that is towards the upper range of a single household's corn acreage for a single year. The capital investment in such projects is quite small, compared to comparable developments in cattle raising, for example. The infrastructure is modest as well. And the cultivation techniques involved in such multihousehold units are also to some extent transferable and applicable to *houselot* or single household irrigated cultivation. With his experience in one such project, a fellow goes home and plants watermelons which he irrigates and fertilizes in the manner he was taught at the project site; another fellow opts for chile, planting in his *houselot* enough bushes to make a trip to market with the produce once a week. And so on and so forth. Irrigation units much greater in size or with very different organization and

technique might well pose more severe limits to the sort of flexibility I have been describing in this paper, it is true. But for the time being, at least, government projects in Quintana Roo have provided participants with techniques and knowledge that serves them as a kind of equity deployable in other and future endeavors.

Finally, for all of the households in this region, slash-and-burn corn farming remains the basis of household economy and the mainstay of sustenance. Destroy the forest and the household too would crumble. Where then will people get corn? What about game, the income from their apiaries, fuel for the household kitchen, and even fertile soil in which to conduct modest degrees of intensive cultivation? Should the forest sources of these and other elements of Maya livelihood be lost—whether through changes in the way Mayas labor in the forest, or through other factors largely beyond their control—then these Mayas would truly become dependent upon that marketplace and labor market whose effects upon their freedom they so suspect (Alonso, 1979).

Mayas of central Quintana Roo, either alone or with the assistance of outside agents, will destroy the forest for short run gain, to make a living now, without regard to future needs and the security of the next generation. They will, and to some extent are, doing that. But they would be amenable to preserving the forest as well, just as they fought for decades to preserve their access to it in time of war and in time of peace. They will do so because the freedom they so value (and the return of slavery they so fear) are intimately linked with the nature and existence of the forest. What they seek right now are options to livelihood and flexibility in laboring, op-

tions which they evaluate not only on the basis of short run returns, but in terms of the multiple ramifications they have upon the quality of life and the preservation of freedom.

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